

## **5.6 BIOLOGICAL RESOURCES**

The Solar One Project includes the construction, operation, maintenance, and abandonment of up to 850 megawatts (MW) of capacity by a solar power generating facility and its ancillary systems in two phases (Phase I: 500MW [approximately 5,838 acres]/Phase II 350MW [approximately 2,392 acres]). The Project will consist of up to approximately 34,000 SunCatchers. Construction is anticipated to occur over an approximate four-year period beginning in 2010 and ending in 2014. It is estimated that approximately an average of 400 construction and 180 long-term labor jobs will be required.

The Project is located in an undeveloped area of San Bernardino County, California, approximately 37 miles east of Barstow, California and north of Interstate 40 (I-40) between approximately 1,925 to 3,050 feet above mean sea level. The Project is located primarily on Bureau of Land Management (BLM) land within the Barstow Field Office. Approval of the Project Right-of-Way (ROW) Grant Application (Form 299, Applications CACA 49539 and 49537) will result in the issuance of a ROW Grant Permit for use of federal lands administered by the BLM. The Project would require a plan amendment to the 1980 California Desert Conservation Area (CDCA) Plan.

The area where the Project would be constructed is primarily open, undeveloped land within the Mojave Desert. The Cady Mountain Wilderness Study Area (WSA) is located north of the Solar One site. The Pisgah Crater, within the BLM-designated Pisgah Area of Critical Environmental Concern) ACEC, is located south and east of the Project (south of I-40 by several miles). Several underground and above ground utilities traverse the area.

An approved interconnection letter from California Independent Service Operator (CAISO) has been issued for the Project. The associated System Impact Study (SIS) is located in Appendix H. The SIS indicates that additional upgrades to the Southern California Edison (SCE) Lugo-Pisgah No. 2 Transmission Line and upgrades at the SCE Pisgah Substation will be required for the full build out of the 850MW Project. Supplemental studies performed by SCE and CAISO indicate that capacity is available on the existing transmission system to accommodate less than the 850MW Project.

An on-site substation (i.e., Solar One Substation [approximately 3 acres]) will be constructed to deliver the electrical power generated by the Project to the SCE Pisgah Substation. Approximately twelve to fifteen 220kV transmission line structures (90 to 110 feet tall) would be required to make the interconnection from the Solar One Substation to the SCE Pisgah Substation. All of these structures would be constructed within the Project Site.

The Project will include a centrally located Main Services Complex (14.4 acres) that includes three SunCatcher assembly buildings, administrative offices, operations control room, maintenance facilities, and a water treatment complex including a water treatment structure, raw water storage tank, demineralized water storage tank, basins, and potable water tank.

Adjacent to the Main Services Complex, a 14-acre temporary construction laydown area will be developed and an approximately 6-acre construction laydown area will be provided adjacent to the Satellite Services Complex south of the Burlington Northern Santa Fe (BNSF) railroad. Two additional construction laydown areas (26 acres each) one will be located at the south entrance off Hector Road and the other at the east entrance just north of the SCE Pisgah Substation.

Temporary construction site access would be provided off of I-40 beginning east of the SCE Pisgah Substation and would traverse approximately 3.5 miles across the Pisgah ACEC requiring an approximate 30-foot ROW. Long-term permanent access would be provided by a bridge over the BSNF railroad along Hector Road north of I-40. Equipment may be transported during construction via trucks and/or rail car (through the construction of a siding), that would be located on the north side of BNSF railroad and east of Hector Road or as authorized by BNSF.

Water would be provided via a groundwater well located on a portion of the BLM ROW grant north of the Main Services Complex and transported through an underground pipeline. The expected average well water consumption for the Project during construction is approximately 50 acre-feet per year. Under normal operation (inclusive of mirror cleaning, dust control, and potable water usage), water required will be approximately 36.2 acre-feet per year. Emergency water may be trucked in from local municipalities.

This section analyzes potential effects that the Project and its ancillary systems may have on biological resources located within the Project Site. The existing biological resources within the Project Study Area and within a 1000-foot radius around the site as well as within a 100-foot buffer of the proposed 30-foot-wide temporary access road are discussed in this section. Additional evaluation one mile beyond the Project boundary was conducted along with consideration of other cumulative projects in the region. Also, the potential effects on biological resources as a result of the Project are assessed. Figure 5.6-1, General Vicinity Map Solar One Project, displays the general topography of the Project Study Area and vicinity.

In compliance with the California Environmental Quality Act (CEQA), and in support of an Application for Certification (AFC) from the California Energy Commission (CEC), a biological resources baseline survey of the SES Assessment Area (which includes the AFC Assessment Area) and BLM ACEC was conducted by URS for Solar One. The biological resources assessment included a database review of the California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service (USFWS) to identify previous biological resource locations in the Project vicinity. Based on the results of the database review, biologists conducted vegetation mapping, rare plant surveys, and protocol surveys for special status species known to occur within the vicinity of the AFC Assessment Area as well as in the larger SES Assessment Area and within the BLM ACEC (Figure 5.6-2, Vegetation Map Solar One Project). The AFC Assessment Area is a subset of the larger SES Assessment Area, which is adjacent to the BLM ACEC Assessment Area (Figure 5.6-2). The existing transmission line is the boundary between the SES Assessment Area and the BLM ACEC Assessment Area.

### **5.6.1 Affected Environment**

The Project would develop a solar-powered electric generating facility situated approximately 37 miles east of Barstow in San Bernardino County in southern California. The Project Area is located on land managed by the BLM. A total of approximately 8,230 acres would be included within the fenced site. The AFC Assessment Area boundaries are the Cady Mountains to the north, Newberry Mountains to the west, an existing SCE transmission line to the east, and I-40 to the south. The Project Study Area originally included a large area of land east of the transmission line that was in a recently BLM-designated ACEC and biological surveys were also conducted in the BLM ACEC, which is east of the transmission line. The BLM ACEC is not part of the currently proposed Project.

The Project is also located within the planning area of the proposed West Mojave Coordinated Management Plan (West Mojave Plan or WMP). The WMP has been approved by the BLM and USFWS and designates a total of four Desert Wildlife Management Areas (DWMA), each of which focuses on the protection and conservation of desert tortoise (*Gopherus agassizii*), Mojave ground squirrel (*Spermophilus mohavensis*), and other state-or federally listed or BLM special management status species that share their habitats. The AFC Assessment Area is not within any DWMA or ACEC.

The 8,230-acre AFC Assessment Area and the proposed temporary access road are within the Mojave Desert. These areas support mostly Mojave Desert creosote bush scrub vegetation with lesser amounts of desert saltbush scrub, un-vegetated areas on steep rocky slopes, and developed/disturbed areas. The Project Site has a history of cattle grazing, as evidenced by fencing and watering stations that can be found scattered within the Project Site. The Project Site is also in a location that has a history of past mining operations and claim filings. These active land uses have resulted in the area being disturbed in limited areas. In addition, the site has been used by off-highway vehicles (OHV) with several OHV trails traversing the area.

#### **5.6.1.1 Survey Methods**

A search of the California Natural Diversity Database (CNDDDB) (2008) revealed several previously documented special status species occurring in the Project vicinity within a 10-mile radius of the Project boundary (Figure 5.6-3, CNDDDB and DCH Areas in the Vicinity of Solar One Project). Special status species documented by CNDDDB within the 10-mile radius included plants such as Emory's crucifixion thorn (*Castela emoryi*), small-flowered androstephium (*Androstephium breviflorum*), and white-margined beardtongue (*Penstemon albomarginatus*), and wildlife such as desert tortoise, Mojave fringe-toed lizard (*Uma scoparia*), and Nelson's bighorn sheep (*Ovis canadensis nelsoni*). A complete list of special status species with the potential to occur in the Project vicinity can be found in Appendix Y, Biological Resources Technical Report. A list of survey dates and personnel for all biological resource surveys can be found in Appendix Y, Biological Resources Technical Report.

In March 2007, URS biologists conducted a habitat assessment to characterize the vegetation within the AFC Assessment Area and vicinity to determine the suitability of the habitats for special status species. Historically, the BLM had designated the Project vicinity as Category 2 habitat (of 3 Categories) for the desert tortoise, although this designation is no longer used by BLM. The goal of Category 2 lands was to maintain stable, viable populations of desert tortoise.

From March 19, 2007 through May 11, 2007, URS biologists conducted vegetation assessments and special status plant surveys within the Project Area. To conduct the surveys, the entire Project Area was divided up into 240-acre cells. A team of two biologists surveyed two cells per day. Within each cell, a list of all plants species was made by each biologist. If terrain was steep or rocky or if there was more diversity to be recorded, extra field time was allocated. Because of poor conditions for surveying for rare plants during the 2007 field season, special status plant surveys were repeated and expanded in 2008 to include areas south of the railroad and the BLM ACEC east of the existing transmission line. These surveys were conducted from March 10, 2008 through May 10, 2008 using the same methods as in 2007.

Desert tortoise surveys were conducted in the Project Area from May 15, 2007 through May 31, 2007 and from April 1, 2008 through May 7, 2008. Sample plot presence-absence surveys were conducted according to the USFWS Field Survey Protocol for a Non-federal Action that may occur within the range of desert tortoise (USFWS 1992). A sampling approach approved by the BLM was implemented because 100 percent coverage over such a large area was deemed impractical. Within each 240-acre grid cell, a sample plot that was eighty (80) acres in size (an area that one trained biologist can adequately survey in a single day) was established (Figure 5.6-4, Special Status Species Detected During URS Surveys Solar One Project). Each pair of biologists surveyed two 80-acre sample plots each day. The biologists were trained in the desert tortoise 30-foot transect survey protocol. Locations of tortoise sign, burrows, and live tortoise within each sample plot were recorded with consumer-grade GPS units (10-15 foot accuracy). Photographs of live desert tortoise were taken and data including size and health of the tortoise, condition of its burrow if present, and habitat the tortoise was found in were recorded for each tortoise sighting. Care was taken to avoid disturbing detected tortoises.

Incidental observations of tortoise and other wildlife species and sign were also recorded during the field efforts. Other wildlife species were identified using scat, tracks, burrows, vocalizations, or direct observations with the aid of binoculars. Applying a 33 percent sampling rate, the AFC Assessment Area included 53 eighty-acre sample plots for the desert tortoise protocol surveys. Approximately 4,240 acres of the AFC Assessment Area were surveyed using the 30-foot transect survey protocol. The sample plots included a perimeter buffer area required by CEC guidelines. Selection of the sample plots was spatially even with plot locations sited without bias toward habitat type or elevation (Figure 5.6-4).

From June 2, 2008 through June 6, 2008 URS biologists conducted surveys for Mojave fringe-toed lizard (MFTL) in the Project Area. MFTL suitable habitat (i.e., areas of fine wind-blown sand) was mapped within the SES Assessment Area and BLM ACEC prior to the MFTL surveys. During the focused survey, teams of biologists spaced at 15-foot intervals surveyed 100 percent of the areas supporting suitable MFTL habitat (Figure 5.6-4). Areas of potential habitat were examined for lizards and detected lizards were recorded with consumer-grade GPS units. Lizards were photographed when possible. Habitat type, vegetation, weather conditions, and incidental observations of other wildlife species also were recorded during these surveys.

Focused biological surveys for several species of special status plants and burrowing owl were also conducted in 2008. Other special status plant and animal species were recorded when detected incidentally during the various field efforts. During the field surveys, the AFC Assessment Area was surveyed on foot, and all areas were visible from the survey routes. In compliance with CEC regulations, habitat within a one-mile buffer surrounding the AFC Assessment Area was also qualitatively assessed for biological resources.

When a special status plant species, desert tortoise, or other important biological resource was located during the special status plant surveys, its location was documented with the aid of consumer-grade GPS units (10-15 foot accuracy) and imported to a GIS database for display on 1-inch = 200 feet rectified 2005 aerial photographs. Digital photographs were also taken of important biological resources and habitats. Data for various resource areas are not disclosed for some private land parcels due a lack of specific private landowner consent for parcel specific disclosure of data.

### ***5.6.1.2 Existing Conditions***

The 8,230-acre AFC Assessment Area and the proposed temporary access road are located within the Mojave Desert in an area approximately 37 miles east of Barstow, California. The Mojave Desert is the transitional area between the hotter Sonoran Desert and the cooler and higher elevation Great Basin Desert. This desert is within the rain shadow of the Transverse and Sierra Nevada mountain ranges, and is defined by a specific combination of latitude, elevation, geology, and indicator plant species.

The Mojave Desert is the driest desert in the continental United States with average precipitation ranging from 2.23 to 2.5 inches per year falling primarily between October and March, and temperatures ranging from 40 to 110 degrees Fahrenheit. Perennial rivers and streams are rare, with the Mojave River being the most prominent water body in the Project vicinity. Elevations in the Mojave Desert range from the lowest elevation below sea level at Death Valley to an elevation of 7,929 feet. Plant communities vary with topography, geology, elevation, and precipitation. These include pinion-pine forests and frost-tolerant species above 5,500 feet, where local average precipitation may be as much as 10 inches per year (some of which falls as snow); Joshua tree woodland in the range of 4,000 to 6,000 feet; mixed desert shrub communities in the middle elevation regions and along the mountain range fronts; and creosote bush and other drought-tolerant species in the lower elevation regions where rainfall averages less than 2.5 inches per year (USGS 2004).

### ***Plant Communities***

The 8,230-acre AFC Assessment Area, including a 1000-foot buffer surrounding the Project boundary and a 100-foot buffer along the proposed temporary access road, is located in gently sloping, open desert scrub with a few sandy alluvial fans eroding down from the steep rocky hills associated with the Cady Mountains to the north and east. Vegetation is composed primarily of Mojave Desert creosote bush scrub with a smaller area of desert saltbush scrub as defined by the Holland (1986) classification of plant communities. Disturbed areas are associated with dirt roads and trails, areas adjacent to railroads, and the interstate highway, along underground pipeline routes, and cleared areas from past land uses (*e.g.*, mining). A one-mile buffer around the site is least disturbed farthest away from the highway, railroads, and other permanent developments.

The AFC Assessment Area supports five distinct vegetation communities. These vegetation communities were digitized and are displayed on aerial photographic maps. Each habitat description follows the Holland vegetation classification (Holland 1986). A complete list of plants detected during 2007 and 2008 surveys is provided in Appendix Y, Biological Resources Technical Report. Table 5.6-1, Vegetation Communities Occurring within the Project boundary, shows the estimated acreages of existing vegetation communities for areas within the Project boundary.

Developed lands (Holland Code 12000) include roads, built structures, and associated infrastructure. Within the Project Area, these included dirt roads, transmission lines, underground gas pipelines, railroads, and any other built environments. Developed areas occurred on approximately 24.0 acres of the AFC Assessment Area, 34.4 acres of the proposed temporary access road, and 330.5 of the 1000-foot buffer of the AFC Assessment Area.

**Table 5.6-1**  
**Vegetation Communities Occurring within the Solar One AFC Project Boundary**

Community Name	Holland Code	AFC Assessment Area Acreage	Temporary Access Road Acreage*
Developed	12000	24.0	34.4
Desert Saltbush Scrub	36110	237.3	0.0
Disturbed Mojave Creosote Bush Scrub	34100	88.6	14.4
Mojave Creosote Bush Scrub	34100	7812.5	20.8
Un-Vegetated Habitat	13000	67.6	0.0
<b>Total</b>		8,230.0	69.6

\* Temporary Access Road Acreage includes a 100-foot buffer.

Desert saltbush scrub (Holland Code 36110) is a low, sparse mixture of micophyllous shrubs and occasional succulent species. Stands of shrubs are usually widely spaced and are strongly dominated by desert saltbush (*Atriplex polycarpa*). Other species include white burrobush (*Hymenoclea salsola*), and inkweed (*Suaeda moquinii*). This habitat usually forms on fine-textured, poorly draining soils with high alkalinity and salinity, usually surrounding playas on elevated ground. Desert saltbush scrub is only found in the southwestern corner of the AFC Assessment Area (237.3 acres) in association with small patches of Mojave creosote bush scrub. No desert saltbush scrub is present along the proposed temporary access road. In addition, approximately 289.1 acres of desert saltbush scrub occurs in the 1000-foot buffer of the AFC Assessment Area.

Mojave creosote bush scrub (Holland Code 34100) is a community dominated by creosote bush (*Larrea tridentata*) and white bur-sage (*Ambrosia dumosa*). Shrubs are typically widely spaced with bare ground between them. A diverse annual herb layer may flower in late March and April with sufficient winter rains. Other common plant species in this habitat include smoke tree (*Senna armata*), Nevada ephedra (*Ephedra nevadensis*), white burrobush, encelia (*Encelia* spp.), ratany (*Krameria* spp.), and various cactus species (e.g., *Opuntia* spp.). This plant community is usually found on well-drained secondary soils with very low water-holding capacity on slopes, fans, and valleys. This vegetation type makes up the majority of the acreage within the AFC Assessment Area boundaries (7,812.5 acres undisturbed and 88.6 acres disturbed). Approximately 20.8 acres of undisturbed and 14.4 acres of disturbed Mojave creosote bush scrub occur within the 100-foot buffer of the proposed temporary access road.

Un-vegetated habitat (Holland Code 13000) occurs on steep rocky slopes that dominate the northeastern boundary of the AFC Assessment Area. Little vegetation is associated with this rocky habitat. A total of 67.6 acres of the un-vegetated habitat occurs along the northern boundary of the AFC Assessment Area.

***Wildlife Resources***

The AFC Assessment Area supports a diverse assemblage of desert wildlife species. A complete list of wildlife species detected during the 2007 and 2008 surveys are found in Appendix Y, Biological Resources Technical Report. Reptiles detected included desert tortoise, Mojave fringe-toed lizard, common side-blotched lizard (*Uta stansburiana*), western whiptail lizard (*Cnemidophorus tigris*), zebra-tail lizard (*Callisaurus draconoides*), western banded gecko (*Coleonyx variegatus*), Mojave rattlesnake (*Crotalus scutulatus*), and sidewinder (*Crotalus cerastes*).

Common bird species detected in the AFC Assessment Area include common raven (*Corvus corax*), California horned lark (*Eremophila alpestris*), western kingbird (*Tyrannus verticalis*), California thrasher (*Toxostoma redivivum*), black-throated sparrow (*Amphispiza bilineata*), Say's phoebe (*Sayornis saya*), and red-tailed hawk (*Buteo jamaicensis*).

Mammals observed or indirectly detected from scat or tracks include black-tailed jackrabbit (*Lepus californicus*), kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), American badger, and woodrat (*Neotoma* sp.). Rodent tracks and burrows were observed throughout the Project area.

***Sensitive Habitats and Special-Status Species***

Special status habitats are those that support special status plant or animal species, or are unique vegetation communities considered rare within the region.

**Special-Status Plants**

The AFC Assessment Area supports a variety of common and endemic plants. Four California Native Plant Society (CNPS) listed species are found within the AFC Assessment Area (Figure 5.6-4): small-flowered androstephium (*Androstephium breviflorum*), Emory's crucifixion thorn, Utah vine milkweed (*Funastrum utahense*), and white-margined beardtongue. No special status plants were found within the 100-foot buffer of the proposed temporary access road. A complete list of special status plant species known from the Project vicinity is provided in Appendix Y, Biological Resources Technical Report.

**Small-flowered Androstephium**

Regulatory Status: Federal: None; State: None; CNPS: List 2.3

This member of the Family Liliaceae is relatively rare in California, but is found throughout the western United States. It is often found in undisturbed sandy areas usually in open area lacking large shrubs, often in association with the more common desert lily (*Hesperacaulis undulata*). No small-flowered androstephium were detected during the 2007 survey season, likely due in part to a low rain year. During the 2008 season, there were 52 observations of this species scattered throughout the AFC Assessment Area and 14 observations within the 1000-foot buffer of the AFC Assessment Area (Figure 5.6-4).

**Emory's Crucifixion Thorn**

Regulatory Status: Federal: None; State: None; CNPS: List 2.3

This deciduous shrub is found throughout the Mojave and Sonoran deserts and is typically found in dry washes. This species generally occurs in low abundance, blooming from June to July. One specimen of Emory's crucifixion thorn was found within the north-central portion of the AFC Assessment Area in 2008 (Figure 5.6-4). No seedlings for crucifixion thorn were observed during the 2007 season.

**White-margined Beardtongue**

Regulatory Status: Federal: None; State: None; CNPS: List 1B.2

This species is known only from four locations within California, with the nearby Pisgah Crater and adjacent BLM ACEC being one of these populations. White-margined beardtongue is typically found in open sandy soils that are not regularly disturbed. No white-margined beardtongue were detected during the 2007 surveys, a year with very low recorded rainfall in this area. A total of 22 locations of white-margined beardtongue were detected during the 2008 season. All plants were found growing at higher elevation areas that are not subject to severe flooding.

**Utah Vine Milkweed**

Regulatory Status: Federal: None; State: None; CNPS: List 4.3

Utah vine milkweed is a perennial herb that is native to western North America. There are no known observations in the CNDDDB (CDFG 2008). This species is uncommon and found in dry, sandy or gravelly areas in the Mojave Desert at elevations of less than 1000 meters. The blooming period for this species occurs from April until June. A single individual was observed in 2008; none were observed in 2007. This individual was observed south of the railroad and north of I-40 (Figure 5.6-4).

**Special-Status Wildlife**

A total of seven special status wildlife species were detected in the AFC Assessment Area during the surveys: desert tortoise, Mojave fringe-toed lizard, California horned lark, Bendire's thrasher, burrowing owl, golden eagle (*Aquila chrysaetos*), and Swainson's hawk (*Buteo swainsoni*). The following species accounts are provided for the special status wildlife species detected on-site. No special status wildlife species were found within the 100-foot buffer of the proposed temporary access road. A listing of other special management status species known from the project vicinity is provided in Appendix Y, Biological Resources Technical Report.

**Desert Tortoise**

Regulatory Status: Federal: USFWS: Threatened; State: Threatened

Desert tortoise is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Desert tortoise populations are declining due to various factors including the spread of a fatal



respiratory disease, increases in raven populations that prey on juvenile tortoises, and habitat loss and degradation due to various extensive and intensive land uses. Only the Mojave population is Federal- and State-listed as threatened. Typical tortoise habitat consists of firm but not hard ground, usually soft sandy loams and loamy sands, to allow for burrow construction (Karl 1983). Desert tortoise mostly occur in four subpopulations in the California Mojave Desert (Ord-Rodman, Superior-Cronese, Fremont-Kramer, and Joshua Tree DWMAs) and outside of these areas tortoise tend to occur in at much lower densities. This species is mostly found in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub. The topography where this species is typically found includes flats, low valleys, bajadas, and low hills between 2,000 and 3,300 feet and occasionally above 4,100 feet.

The diet of desert tortoise consists mainly of annual plants and grasses, but also perennial plants such as cacti and native forbs when available, certain non-native plant species are also eaten (West Mojave Planning Team 1999). Desert tortoise are most active when plants are available for forage or when pooled water is available for drinking, usually March through early June and again between September and early November (Marlow 1979). They typically have home ranges from 27-131 acres (Berry 1986). Individuals commonly traverse 1,476-2,624 feet/day within their home range, and males have been recorded to travel up to 0.62 miles within their home range. Mojave desert tortoise are also known to disperse more extended distances (1.9 miles in 16 days and 4.5 miles in 15 months; Berry 1986).

Desert tortoise sign and burrows were detected throughout the Project Area, with five live desert tortoises and one active burrow detected within the AFC Assessment Area during the focused desert tortoise surveys (Figure 5.6-4). During other field efforts within the AFC Assessment Area, an additional 13 live desert tortoises were incidentally detected along with eight active burrows. The total number of desert tortoise and active burrows found in the larger SES Assessment Area during desert tortoise focused surveys was 17 and 6, respectively, with 24 live desert tortoise and 13 active burrows incidentally detected during other field efforts. The total number of desert tortoise and active burrows found in the BLM ACEC during focused surveys was 11 and nine, respectively, and an additional five live tortoise and one active burrow found incidentally during other field efforts.

A total of 15 of the 53 sample plots surveyed within the AFC Assessment Area during focused desert tortoise surveys had tortoise or tortoise sign recorded. The distribution of tortoise and tortoise sign was not random and tended to be concentrated in the north-central portion of the SES Assessment Area (Figure 5.6-5, Summary of Patterns of Desert Tortoise Occupation Solar One Project). Approximately 56 percent (7,441 acres) of the entire surveyed area (13,200 acres) was confirmed as being occupied by tortoise within the AFC Assessment Area boundary. Additionally, 11 percent (1,440 acres) of the 1000-foot buffer around the AFC Assessment Area was confirmed to be occupied desert tortoise habitat.

The majority of the AFC Assessment Area is considered suitable for desert tortoise. Based on sample plot coverage (33 percent) and typical tortoise detectability (55-68 percent; Nussear et al. 2008), the SES Assessment Area likely supports between 70 and 127 desert tortoise (Figure 5.6-5). The adjacent BLM ACEC area likely supports between 61 and 111 desert tortoise based on the results of the protocol surveys. Additional desert tortoise may occur in areas where no tortoise or tortoise sign were detected, although presumably at much lower densities than the cells where tortoise and tortoise sign were actually detected.

**Mojave Fringe-toed Lizard**

Regulatory Status: Federal: BLM: Sensitive; State: California Department of Fish and Game (CDFG): Species of Special Concern

Mojave fringe-toed lizard (MFTL) inhabits areas of fine windblown sand in the Mojave Desert from the southern end of Death Valley south to the Colorado River around Blythe, and into extreme western Arizona. Suitable habitat includes sparsely vegetated arid areas with fine wind-blown sand, including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Mojave fringe-toed lizards require fine, loose sand for burrowing. The elevation range for this species is approximately 300 to 3,000 feet (Stebbins 2003). Adults go underground in the sand or in a burrow in the fall, and emerge in late winter. Young lizards may go underground later and emerge earlier, or may remain active all year. Their diet consists primarily of small invertebrates such as ants, beetles, and grasshoppers, along with occasional blossoms, leaves, and seeds. Clutches of one to five eggs are laid from May to July.

Observations of this species were associated with the sandy areas within both the SES Assessment Area and the BLM ACEC during 2008 surveys (Figure 5.6-4). The AFC Assessment Area supports one patch of MFTL-occupied habitat between the railroad and I-40. Most of the MFTL observations were found within the BLM ACEC, supporting up to five locations of occupied MFTL habitat. One location occurs in the northwestern portion of the SES Assessment Area.

**California Horned Lark**

Regulatory Status: Federal: None; State: CDFG Watch List

This subspecies has a patchy distribution, and occurs in deserts, grasslands, and other open, flat areas. California horned larks are known to colonize areas graded for development, disappearing when construction begins. California horned larks are typically found walking along the ground, searching for food in the form of insects, snails, and spiders during the breeding season, adding grass and forb seeds and other plant matter to their diet at other seasons. Nests are placed on the ground, and nesting occurs in April with fledglings appearing from May to July. After breeding, they become very gregarious, often forming large flocks that forage and roosting together. California horned lark were observed consistently throughout the assessment areas during the 2007 and 2008 surveys.

**Bendire's Thrasher**

Regulatory Status: Federal: BLM: Sensitive, USFWS: Bird Species of Conservation Concern; State: CDFG: Species of Special Concern

Bendire's thrasher is found in the southwestern U.S. and northwestern Mexico, from southern Nevada, southern Utah, and southwestern Colorado south to central Sonora in Mexico. Within this range, its distribution is patchy and in some cases poorly known (BirdLife International 2008). Individuals in the northern portion of the range migrate south in the winter and overlap with southern residents (BirdLife International 2008). Breeding individuals favor relatively open grassland, shrubland, or woodland with scattered shrubs or trees; Bendire's thrasher is not found in dense vegetation. It forages primarily on the ground for insects and other arthropods, but will

also eat seeds and berries (BirdLife International 2008). In the Mojave Desert, migration begins as soon as breeding finishes and all birds have left the breeding grounds by late August (BirdLife International 2008). There were no observations made in 2007 or 2008 within the AFC Assessment Area, though Bendire's thrasher was seen in an adjacent area within the SES Assessment Area.

### **Burrowing Owl**

Regulatory Status: Federal: BLM: Sensitive, USFWS: Bird Species of Conservation Concern;  
State: CDFG: Species of Special Concern (burrow sites)

The burrowing owl is a small, ground dwelling bird that inhabits open habitats such as grasslands, agricultural fields, and disturbed areas in the western half of the United States down into Baja California and central Mexico (Johnsgard 1988). Burrowing owls use burrows throughout the year for shelter from weather and predators and for nesting during the breeding season (February 1 to August 31). In Southern California, the most commonly used rodent burrow is that of the California ground squirrel (*Spermophilus beecheyi*). The burrowing owl nesting distribution is strongly correlated to local ground squirrel burrow distribution (Collins 1979). Burrowing owls form short-term pair bonds with male territoriality peaking during pair formation and declining after egg laying. Not all individuals capable of breeding do so every year. Burrowing owls have declined through much of their range because of habitat loss due to urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978). The incidental poisoning of burrowing owls and the destruction of their burrows during eradication programs aimed at rodent colonies has also been a large factor in their decrease (Collins 1979; Remsen 1978; and Zarn 1974). Burrowing owls are relatively tolerant of lower levels of human activity. There were two separate observations made of burrowing owls during the 2008 survey. There were no observations made in 2007. Further investigation would be required to determine whether these owls were migrants or residents since no owl burrows were detected in the survey areas.

### **Golden Eagle**

Regulatory Status: Federal: BLM: Sensitive, USFWS: Bird Species of Conservation Concern;  
State: CDFG: Watch List, Fully Protected (nesting)

Golden eagles are distributed throughout North America (Johnsgard 1990). Golden eagles occur as breeding residents in the western half of the United States and formerly nested in the northeast (Terres 1980; Johnsgard 1990). This species is an uncommon resident throughout California (Zeiner, et al., 1990; Unitt 1984). Golden eagles forage in grassy and open shrubby habitats and nest primarily on cliffs, with secondary use of large trees (e.g., oaks and sycamores). Breeding pairs may occupy territories of several square miles, within which they may often use several nest sites, shifting nest sites from year to year. This species has declined because of loss of foraging and nesting habitat to urban and agricultural development, human persecution (illegal shooting), incidental poisoning of prey species (e.g., ground squirrels and prairie dogs), egg collecting, power line electrocution, and human disturbance at nest sites (Snow 1973; Johnsgard 1990; Scott 1985). Golden eagles were observed during both the 2007 and 2008 survey season. Both observations were fly-overs. There were no nests or breeding activity observed in the area.

**Swainson's Hawk**

Regulatory Status: Federal: USFS: Sensitive, USFWS: Bird Species of Conservation Concern; State: Threatened

The Swainson's hawk breeds throughout much of the Rocky Mountains and western Great Plains, from southern Alberta and Saskatchewan to northern Mexico. Its breeding range in California is limited to the northern portion of the state. It is most often found in grasslands, shrublands, and agricultural areas, where both open land for foraging and trees for roosting and nesting are available. Ground squirrels, gophers, voles, mice, small birds, lizards, and snakes form the bulk of the hawks' prey. Sometimes they hunt on the ground, lurking near ground squirrel holes until their prey emerges. Declines in Swainson's hawk populations have been reported across much of the species' range over the past 50 years. Loss or degradation of nesting, foraging, wintering, and migration stop-over habitat are among the primary reasons for the decline, but illegal shooting and electrocutions on power lines have also played a role. The hawk's insect diet also makes it especially vulnerable to pesticide poisoning in agricultural fields. There were no observations of Swainson's hawk in 2007 and a single observation (fly-over) in 2008. This species is not expected to breed in the area and is likely a migrant.

**American Badger**

Regulatory Status: Federal: None; State: Species of Special Concern

The badger is an uncommon resident of level, open areas in grasslands, agricultural areas, and open shrub habitats. It digs large burrows in dry, friable soils and feeds mainly on fossorial mammals (e.g., ground squirrels, gophers, rats, and mice). Badgers are primarily active during the day, but may become nocturnal in close proximity to humans. The home range of badgers has been measured at 1,327-1,549 acres for males and 338-751 acres for females in Utah (Lindzey 1978) and 400 to 600 acres in Idaho (Messick and Hornocker 1981). Mating occurs in late summer or early fall. Two to three young are born 183 to 265 days later in March or April (Long 1973). Badgers are known to live at least 11 to 15 years (Messick and Hornocker 1981). Threats to badgers include urban and agricultural development of habitat and possibly excessive trapping and persistent poisons in prey in some areas (Zeiner, et. al., 1990). There were no badgers observed during the 2007 surveys and a single badger observed in 2008. The single adult badger observed in 2008 was detected in the northeast corner of the AFC Assessment Area.

**Nelson's Bighorn Sheep**

Regulatory Status: Federal: BLM: Sensitive, USFS: Sensitive; State: Species of Special Concern,

Nelson's bighorn sheep is a subspecies of bighorn sheep that occurs in the Southwest desert regions of the U.S. They live in semi-open, precipitous terrain with rocky slopes, ridges, and cliffs or canyons. Steep slopes and cliffs are used to escape from predators such as coyotes and cougars. The Nelson subspecies has become well adapted to the desert mountain environment; they are typically found in small bands with little or no permanent water. Their diet consists of grasses, forbs, and sedges. The species is polygamous; the dominant ram does most of the courting and mating. Mating may take place at anytime in the desert if climatic conditions are suitable. The gestation period is approximately 180 days. These animals began their decline in the mid-1800s at the time of heavy human settlement of the West (SNMNH, 2008). This can be

attributed at least in part to degradation of their habitat due to development, road-building, water-management practices, and recreational activities. The bighorns have also been affected by disease, sometimes passed on to them by domestic sheep, and are often preyed upon by mountain lions and probably by domestic dogs as well. In some places where bighorn populations have gone extinct, new herds have been reintroduced, but many parts of their original range are no longer suitable (SNMNH, 2008). The Cady Mountains is actively managed for big horn sheep (G. Thomas, pers. comm. 2008). No Nelson's bighorn sheep were observed during the 2007 or 2008 surveys; however, approximately 458.3 acres of suitable habitat reported as being utilized by big horn sheep exists along the steep rocky slopes at the northeast boundary of the AFC Assessment Area with an additional 404.5 acres of suitable habitat within the 1000-foot buffer of the AFC Assessment Area (Figure 5.6-6, Big Horn Sheep Habitat Solar One Project).

### ***Wildlife Corridors***

A wildlife corridor is defined as a linear landscape feature that allows animal movement between two patches of habitat or between occupied habitat and geographically discrete resources (e.g., water). To function effectively, a corridor must accomplish two basic functions. First, it must effectively link two or more large patches of habitat. The corridor must conduct animals through the landscape to areas of suitable habitat without excessive risk of directing them to unsuitable areas where risk of mortality may be very high. Second, the corridor must be suitable to the focal target species so that they will use the corridor frequently enough to achieve the desired demographic and genetic exchange between populations. Presence of wildlife corridors allow an exchange of individuals between populations, lowering inbreeding within populations, increasing effective population size, and facilitating re-establishment of populations that have been decimated or eliminated due to random events.

Corridors are often defined by their use by focal species. Focal species are those species that naturally occur in low densities and that may be unwilling or unable to cross extensive areas of development or otherwise unfavorable habitat. Animals have a natural aversion to situations or physical settings they perceive to be dangerous and will often shy away from situations in which they are exposed without cover or escape routes. The presence of disturbance outside of the animal's normal experience is also a situation that is often avoided by animals. In the Mojave Desert, potential focal species for wildlife movement assessment could include mountain lion (*Felis concolor*), coyote (*Canis latrans*), bighorn sheep, bobcat (*Lynx rufus*), and kit fox (*Vulpes macrotis*).

Generally, the Project Site and surrounding vicinity is unrestricted and conducive to live-in habitat and movement of wildlife throughout the area. The SES Assessment Area and the BLM ACEC consist of large areas of generally undisturbed habitat. The primary constraints to wildlife movement are the railroad and I-40, especially for smaller terrestrial species such as reptiles and small mammals.

### **5.6.1.3 Jurisdictional Waters**

#### **Methodology**

##### **Waters of the U.S.**

Major drainages on-site were evaluated to determine whether or not they would be considered under state or federal jurisdiction. The Project Study Area may have the potential to contain waters of the U.S. consisting of non-wetland other waters of the U.S. subject to jurisdiction pursuant to Section 404 of the Federal Clean Water Act. Waters of the U.S. were evaluated based on the presence of an ordinary high water mark (OHWM) or the boundary of adjacent wetlands defining their limits as provided at 33 CFR 328.3 and 328.4.

Guidance from the U.S. Army Corps of Engineers (Corps) (2001), *Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest*, was also used. Guidance of relevance to this delineation includes consideration that:

*“In dryland fluvial systems typical of the desert areas, the most common physical characteristics indicating the OHWM for a channel usually include, but are not limited to: a clear natural scour line impressed on the bank; recent bank erosion; destruction of native terrestrial vegetation; and the presence of litter and debris. For many small desert wash systems, the presence of continuous well-developed upland vegetation in the stream channel is a good indicator that it only conveys surface flow during extremely large storm events and, as a result, would not usually constitute a jurisdictional water of the United States.”*

This guidance has been further elaborated by the Corps (2004 and 2008a), and that elaboration is implemented herein. The potential for Federal wetlands was evaluated based on the presence of wetland hydrology, wetland vegetation, and hydric soils pursuant to guidance from the Federal Manual for Delineating Wetlands (Corps 1987) as augmented by the Corps (2008b). The Project Area does not exhibit features demonstrative of wetland hydrology, wetland vegetation, and/or hydric soils, so no wetland data points were selected and no wetland datasheets were recorded.

##### **Lakes and Streambeds**

Areas subject to jurisdiction pursuant to Section 1600 of the California Fish and Game Code were delineated. Section 1602(a) describes areas subject to its jurisdiction within the following text:

*1602 (a) An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur...*

Section 1602(a) is based on Title 14 CCR 720:

*For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code which requires submission to the department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed of any river, stream or lake designated by the*

*department, or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which may have intermittent flows of water, are hereby designated for such purpose.*

Streams, including creeks and rivers, are defined at Title 14 CCR 1.72 as:

*A stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.*

Lakes are defined at Title 14 CCR 1.56 as:

*Lakes: Includes natural lakes or man-made reservoirs.*

URS understands that these State regulations define the jurisdiction of the California Department of Fish and Game (CDFG) for the purpose of administering Section 1600 of the Fish and Game Code as within the bed, bank, and channel of stream, including intermittent streams, which are equivalent to the areas within the ordinary high water mark (OHWM) of a stream or watercourse. URS also understands that the California Department of Fish and Game routinely asserts jurisdiction on areas that may be adjacent to a stream with an OHWM that demonstrate: a dominance of hydrophytic vegetation, hydric soils, and/or wetland hydrology. Therefore, URS has evaluated such conditions as potentially subject to CDFG jurisdiction.

### **Waters of the State**

Waters of the State include surface and ground waters pursuant to the Porter Cologne Water Quality Control Act. The following definitions of waters of the State and related items from Porter Cologne (§13050 Definitions) used in this report include:

- (d) “Waste” includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.
- (e) “Waters of the state” means any surface water or groundwater, including saline waters, within the boundaries of the state.
- (f) “Beneficial uses” of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.
- (g) “Quality of the water” refers to chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water that affect its use.
- (h) “Water quality objectives” means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.
- (k) “Contamination” means an impairment of the quality of the waters of the state by waste to a degree that creates a hazard to the public health through poisoning or through the spread of

disease. “Contamination” includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.

(1)(1) “Pollution” means an alteration of the quality of the waters of the state by waste to a degree that unreasonably affects either of the following:

- (A) The waters for beneficial uses.
  - (B) Facilities which serve these beneficial uses.
- (2) “Pollution” may include “contamination.”

Additionally, potential beneficial uses that may occur on-site have been evaluated.

### ***Results***

This section describes the results of a field investigation and hydrological assessment to determine the potential presence of surface waters of the United States (U.S.) (i.e., Federal waters), streams or lakebeds subject to regulation by the California Department of Fish and Game (CDFG) pursuant to Section 1600 of the Fish and Game Code, and waters of the State subject to the Porter Cologne Water Quality Control Act (Porter Cologne) within the boundaries of an area currently designated as the SES Solar One AFC Assessment Area.

The Solar One AFC Assessment Area is located on a broad alluvial fan/plain bounded by the Cady Mountains on the north and I-40 on the south. The BNSF railroad runs parallel to I-40 on its north side. The overall site is covered by desert scrub and the region is extremely xeric. The site supports upland habitats composed primarily of Mojave creosote bush scrub without riparian or hydrophytic vegetation and no aquatic life is present on-site. Areas that are mostly off-site within the mountains are sparsely vegetated and best described as un-vegetated habitat (although some sparse vegetation is actually present).

An evaluation of hydrology on-site was performed using the Rosgen stream classification system and the California Rapid Assessment Method (CRAM), especially as it applies to flows that would be expected to occur within an ordinary high water mark (OHWM) up to the 100-year storm event. Rosgen (1996) provides a stream classification system that is widely accepted in the United States. The Rosgen stream classification system results in classifications based on channel morphology and hydrologic considerations. The path of shallow concentrated flow during more extreme rain events on the site does not exhibit erosion in most years, and this flow path is vegetated in most areas with upland vegetation. Therefore, the Rosgen stream classification system was applied to objectively evaluate the drainage features on-site. The Rosgen system defines hydrogeomorphological features that can be measured in the field to apply the classification. These features include consideration of bankfull depth, bankfull width, bankfull discharge, flood-prone width, entrenchment ratio, sinuosity, and slope (Rosgen 1996). It was possible to classify a stream of streams on-site using Rosgen (1996).

Features on-site were also evaluated using CRAM (Collins et al., 2006). CRAM includes procedures for evaluating existing drainage features, and we attempted to apply those procedures on-site. Once again, it was not possible to define streams, wetlands, or similar surface waters on-site using CRAM because of the lack of a definable bankfull stage or related parameters. These results further support the findings from applying the Rosgen classification system. Therefore, the Project Site is considered to not contain streams or washes.



No surface flows are expected through the 5-year storm event, and surface flows may occur in some areas between 5- and 10-year storm events. There are discontinuous landform terraces on-site along limited portions of drainage patterns and these discontinuous terraces appear to be associated with the limits of flows that would occur with the 5- to 10-year storm events, and they may also contain higher level flood events. No surface flows are expected to occur on the AFC Assessment Area along continuous channels in most years.

The Project Site consists of a broad alluvial fan/plain with relatively little topographic variation. The overall landform is relatively flat with shallow slopes trending from the north to south and in some areas to the southwest. There are occasional small hills (buttes) and sand dune areas on the Project Site. Several drainage patterns occur on the AFC Assessment Area. These drainage patterns follow the gradient of higher elevations in the mountains north and east of the Project Site towards lower elevations southerly and westerly across the Project Site. The lands between I-40 and the BNSF railroad slope to the west, ultimately towards Troy Dry Lake, a playa that is located west of the Project Site. There are no well-defined channels on-site, although some discontinuous flood terraces occur in a few areas on-site.

The drainage features on-site are not well-defined channels resulting from active flow and consist of discontinuous floodplains with areas that exhibit a mixed pattern of sheet flow or shallow concentrated flow across isolated, wide areas of land and undefined drainage features over most of the site with evenly distributed desert scrub vegetation throughout. No well-defined active floodplain or flow channels, whether from low or high flows are present. Flow of water on-site is ephemeral and occurs during periods of brief intense rainfall. Flow of water on-site does not occur in most years. It does not tend to occur until 5- to 10-year storm events, and does not consist of major flows at those times. Water flow on-site is not of sufficient intensity or duration to maintain channels indicative of a stream or wash.

### **Waters of the U.S.**

There are no channels on-site that meet the definition of a stream, wash, or similar aquatic feature that can be classified using Rosgen (1996) or CRAM (Collins et al. 2006) and would be potentially regulated by the Corps. The limited discontinuous flood terraces described on-site are sparsely distributed and do not exhibit flows of surface water in most years. Water flows on-site do not occur frequently enough or with sufficient duration to form or maintain channels with a bed and bank. These flood terraces do not indicate a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris that is associated with indicators of an OHWM. Upland scrub vegetation that persists over long periods of time is located within these terraces, and the terraces themselves are not continuous on the Project Site.

The paths of shallow concentrated flow that may occur with higher level storm events on-site are not associated with distinct or continuous flood terraces across most of the site. These paths of rare shallow concentrated flow events do not indicate a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris that is associated with indicators of an OHWM. Upland vegetation is prevalent throughout these areas. Therefore, no waters of the U.S. bounded by an OHWM were found on-site and no waters of the U.S. occur on-site.

**Lakes and Streambeds**

No well-defined streams or channels, as defined by Rosgen (1996) or using CRAM (Collins et al. 2006) and potentially regulated by the CDFG occur on-site. Also, no aquatic life is known to occur on-site. Surface water flow does not occur on-site in most years. There does not appear to be bodies of water on-site that flow at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life, including watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. No lakes occur on-site. Therefore, lakes or streambeds subject to jurisdiction by the CDFG pursuant to Section 1600 of the California Fish and Game Code do not occur on-site.

**Waters of the State**

No well-defined streams, as defined by Rosgen (1996) or using CRAM (Collins et al. 2006) that would be under the jurisdiction of the RWQCB occur on-site. Also, no aquatic life or riparian vegetation occurs on-site. Surface water flow does not occur on-site in most years. There do not appear to be surface waters on-site that are confined by beds, banks, and/or channels indicative of streams, creeks, or washes subject to Porter Cologne. Storm water runoff and flows from flash floods on-site would represent surface water in the form of storm water runoff that could potentially be regulated pursuant to Porter Cologne. Concentrated flood flows through culverts under the railroad and highway may be potentially regulated.

**5.6.2 Environmental Consequences**

Potential and expected direct and indirect effects on biological resources are discussed below. Significant effects are those that would involve the loss of a special status plant or wildlife species, or degradation of their habitat. The Project would have significant effects on vegetation, wildlife, and special management status species if it would:

- cause a fish or wildlife population to drop below self-sustaining levels, California Environmental Quality Act (CEQA) Guidelines, Section 15065(a),
- threaten to eliminate a plant or animal community, CEQA Guidelines, Section 15065(a),
- substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal, plant, or the habitat of the species, CEQA Guidelines, Section 15065(a), Appendix G(c), Appendix I (II.4.b) and (II.5.b),
- substantially diminish or reduce habitat for fish, wildlife, or plants CEQA Guidelines, Section 15065(a), Appendix G(t),
- interfere substantially with the movement of resident or migratory fish or wildlife species, CEQA Guidelines, Appendix G(d),
- change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects), CEQA Guidelines, Appendix I (II.4.1) and (II.5.a),
- introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species, CEQA Guidelines, Appendix I (II.4.c) and (II.5.c),

- deteriorate existing fish or wildlife habitat, CEQA Guidelines, Appendix I (II.5.d), or
- conflict with any regional Habitat Conservation Plan.

The above criteria are used to evaluate the Project's effects on plant communities, wildlife, and special management status species. The potential effects associated with Project construction and operations are discussed below.

#### ***5.6.2.1 Project Site***

After mitigation, the Project would not result in significant effects on special status biological resources because it would not substantially affect, reduce the number of, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of these species.

After mitigation, the Project would not result in significant effects on biological resources because it would not:

- cause a fish or wildlife population to drop below self-sustaining levels,
- threaten to eliminate a plant or animal community,
- substantially diminish or reduce habitat for fish, wildlife, or plants,
- interfere substantially with the movement of resident or migratory fish or wildlife species,
- change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects),
- introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species,
- deteriorate existing fish or wildlife habitat, or
- conflict with any regional Habitat Conservation Plan.

Significant and less-than-significant effects associated with Project construction and operations before mitigation are discussed further below.

### **5.6.3 Impact Assessment**

#### ***5.6.3.1 Vegetation***

The Project will be designed to minimize ground disturbances and resulting environmental effects wherever practicable. The number of roadways will be kept to a minimum, paved roadways will be specifically located to provide main routes for quick access to the site for construction, maintenance, and operations. In addition, access from the main paved roads to the individual SunCatchers will be on unpaved solar field access routes between alternate rows of SunCatchers. Culverts will be installed in a limited number of locations, as necessary, for crossing of flood flow areas. Site layout for the Project will be based on avoiding major washes and minimizing surface-disturbing activities where practicable. Additionally, special status habitat areas (MFTL habitat) will be avoided to the extent practicable.

Brush trimming will occur along roads and around each group of SunCatchers. This task will consist of manually trimming the existing brush to 3 feet in height along the center of a 75-foot area between every other row of SunCatchers. After brush has been trimmed, blading for roadways and foundations will be utilized between alternating rows to provide access to individual SunCatchers. Blading will occur to remove localized rises or depressions to provide for proper alignment and operation of the individual SunCatchers.

The site layout will maintain predevelopment drainage patterns. The paved roadways will have a low flow unpaved swale or roadway dip, as needed, to convey runoff to existing washes. Both paved and unpaved roads will utilize low flow culverts where necessary. Localized channel grading will occur on a limited basis to improve channel function, and to control flow direction away from site buildings and roadways. In addition, a channel will be constructed along the northeastern portion of the site to direct potential 100-year flooding away from the Main Services Complex building site. It is unknown at this time how many culverts will be necessary or where they will be located. This information will be provided once a detailed engineered layout is finalized.

Project construction will occur in two phases beginning in the northeastern corner of the site and moving south and west. Phase I development includes the northeastern section of the Project area down to the BNSF Railroad. Phase II includes the expansion of the Project to portions of land located both southwest and west of Phase I. Construction for both phases will occur in steps with the construction of Phase I at 500MW (5,838 acres) and continuing on to Phase II, which will result in a net output of 350MW (2,392 acres). It is expected that site construction will begin during the first quarter of 2010 and will end during the second quarter of 2014. A summary of construction effects on vegetation within the AFC Assessment Area can be found in Table 5.6-2. Approximately 7,812.5 acres of Mojave creosote bush scrub and 88.6 acres of disturbed Mojave creosote bush scrub will be affected by Project construction (Figure 5.6-2). Impacts on 237.3 acres of desert saltbush scrub are also anticipated. Developed lands currently occur on approximately 24.0 acres of the AFC Assessment Area and will be impacted as well as the un-vegetated habitat (67.6 acres) within the northern limit of the AFC Assessment Area.

Approximately 1,909.6 acres of Mojave creosote bush scrub, 139.9 acres of disturbed Mojave creosote bush scrub, and 289.1 acres of desert saltbush scrub occur within the 1000-foot buffer of the AFC Assessment Area and will be indirectly affected with the implementation of the Project. An additional 20.8 acres of Mojave creosote bush scrub, 14.4 acres of disturbed Mojave creosote bush scrub, and 34.4 acres of developed lands will be affected by the construction of the temporary access road.

Although the vegetation within the immediate vicinity of the SunCatchers will be regularly trimmed and much of the vegetation between rows of SunCatchers will be allowed to regenerate naturally, these narrow (approximately 74 feet wide) strips of vegetation are expected to have minimal residual biological value associated with them. Only select common species with small spatial requirements and tolerant of adjacent human activities (e.g., house finch [*Carpodacus mexicanus*], certain lizards, snakes and rodents) are expected to continue to utilize these narrow strips of vegetation. An illustration of construction disturbance occurring in association with the SunCatchers is provided on Figure 3-28, 1.5-MW Solar Group Construction Disturbance Plan.

During the regeneration of native habitats, there is a potential for the establishment of invasive plant species within the Project Site and the 1000-foot buffer during Project construction and operation. Exotic, invasive species can displace or replace native plant and animal species, disrupt nutrient cycles, and cause changes in the patterns of plant succession. Sahara mustard (*Brassica tournefortii*) and red brome (*Bromus madritenus rubens*) are common invasive species that persist and spread across the Mojave Desert region. Shading from SunCatchers has been shown to increase soil moisture and lower soil temperatures, which may promote growth of invasive species (Smith 1987). The presence of exotic forbs and annual grasses (particularly *Schismus barbaratis*, *S. arabicus*, and *Bromus* spp.) increases the fuel density and continuity of fuels, facilitating fires that can burn hotter and cause more chronic damage to native vegetation.

**Table 5.6-2**  
**Construction Effects on Vegetation at the Project Site**

Community Name	Project Site (acres)	Temporary Access Road (acres)*
Developed	24.0	34.4
Desert Saltbush Scrub	237.3	0.0
Disturbed Mojave Creosote Bush Scrub	88.6	14.4
Mojave Creosote Bush Scrub	7,812.5	20.8
Un-Vegetated Habitat	67.6	0.0
<b>Total</b>	<b>8,230.0</b>	<b>69.6</b>

\* Temporary Access Road Acreage includes the 100-foot buffer.

## 5.6.4 Effects on Special Status Species

### 5.6.4.1 Special Status Plants

#### *Small-flowered Androstephium*

During the 2008 season, there were 52 observations of this species scattered throughout the AFC Assessment Area that would be directly impacted (Figure 5.6-4). Additionally, 14 observations of small-flowered androstephium would be indirectly affected within the 1000-foot buffer of the AFC Assessment Area. Impacts on small-flowered androstephium are considered significant.

#### *Emory's Crucifixion Thorn*

Loss of the one specimen of crucifixion thorn that was found within the northern central portion of the AFC Assessment Area in 2008 is considered to be adverse, but less than significant with the implementation of this Project (Figure 5.6-4).

***White-margined Beardtongue***

Loss of the 22 occurrences of white-margined beardtongue detected within AFC Assessment Area during the 2008 season are considered significant as a result of the proposed Project (Figure 5.6-4).

***Utah vine milkweed***

A single individual of Utah vine milkweed was observed in 2008 south of the railroad and north of I-40 (Figure 5.6-4). Impacts on this species are considered to be adverse, but less than significant with the implementation of this Project.

**5.6.4.2     *Special Status Wildlife******Desert Tortoise***

Impacts on desert tortoise and its habitat will be significant as a result of the proposed Project. Live desert tortoises or active burrows have been detected at 27 locations within the AFC Assessment Area, with a total of 18 live tortoises and 9 active burrow that will be directly impacted (Figure 5.6-4). This may represent between 18 and 33 tortoises based on estimations derived from the protocol survey data. Mortality due to roadkill, site grading, enhanced predation by human-subsidized predators, and loss or degradation of suitable forage habitat are the most likely impacts on any desert tortoise that may remain on-site during construction and operation. Indirect impacts may occur to an additional 13 live tortoise and one active burrow locations detected within a 1000-foot buffer zone.

A total of 15 of the 53 sample plots surveyed within the AFC Assessment Area during protocol surveys had tortoise or tortoise sign recorded. The distribution of tortoise and tortoise sign was not random and tended to be concentrated in the north-central portion of the larger SES Assessment Area (Figure 5.6-5). Approximately 56 percent (7,441 acres) of the entire surveyed area (13,200 acres) that was confirmed as being occupied by tortoise is within the AFC Project boundary and will be directly impacted (Figure 5.6-5). Additionally, 11 percent (1,440 acres) of the surveyed area is within the 1000-foot buffer that may be indirectly impacted with the implementation of the Project. The majority of the AFC Assessment Area is considered suitable habitat for desert tortoise.

Based on sample plot survey coverage (33 percent) and typical tortoise detectability during protocol surveys (55-68 percent; Nussear et al. 2008), the larger SES Assessment Area surveyed likely supports between 70 and 127 tortoise (Figure 5.6-5). Additional tortoise may occur in the remainder of the AFC Project Site, although presumably at lower densities than the survey cells where tortoise and tortoise sign were actually detected.

Indirect effects of the Project include subsidizing potential predators of tortoise, such as ravens and coyotes, through the provision of limiting resources (e.g., fresh water, food, nest sites) mostly absent from the site (Boarman et al. 2006).

***Burrowing Owl***

Two individual owls were observed on-site in 2008; however, none were observed in 2007. Habitat that supports these two burrowing owl detection locations will be affected as a result of the proposed Project. The residency status of these owls still needs to be determined since no active burrows were detected during the field surveys. Impacts on resident burrowing owls would be considered significant.

***Mojave Fringe-toed Lizard***

Approximately 16.9 acres of potential Mojave fringe-toed lizard habitat exists between the railroad and Interstate 40, where one individual MFTL was detected. Direct disturbance of this area will be avoided during construction and operation of the proposed Project. However, disturbance of the surrounding vegetation and fencing of the larger Project Site would isolate this one patch of MFTL habitat from other habitat patches located west and east of the Project area. Indirect effects of the project include subsidizing potential predators of MFTL, such as ravens through the provision of limited resources (e.g., fresh water, nest sites) mostly absent from the site.

***American Badger***

One American badger was found in the northeastern corner of the Project area. Impacts on badger are anticipated to be significant due to permanent loss of 8,230 acres of potential habitat, which is sufficient to support at least one badger territory.

***Nelson's Bighorn Sheep***

No Nelson's bighorn sheep were detected in the AFC Assessment Area, though the area overlaps with occupied year-round use habitat for this species in the northeast corner (Figure 5.6-6). Approximately 458.3 acres of habitat suitable for bighorn sheep will be affected in the AFC Assessment Area and 404.5 acres will be affected in the 1000-foot buffer of the AFC Assessment Area as a result of the proposed Project.

***Other Special Status Species***

Disturbance to the California horned lark, Bendire's thrasher, golden eagle, and Swainson's hawk are possible as a result of the proposed Project. These species were detected in the Project Area or vicinity. Proposed site clearing activities will be conducted during the non-breeding season (September – February). Impacts on these species are regulated by the Migratory Bird Treaty Act (MBTA). Potential impacts on these special status bird species would be adverse, but less than significant due to the extensive amount of suitable habitat for these species in the region and Project vicinity.

**5.6.5 Effects on Wildlife Movement**

The AFC Assessment Area is surrounded by the Cady Mountains to the north and east, the railroad and I-40 to the south. Currently east-west wildlife movement is unconstrained between

the railroad and the Cady Mountains. This movement area will be constrained with the addition of the Project. Constraint of this area will primarily affect terrestrial species such as desert tortoise and MFTL. Mammal species are less constrained because they can use the foothills and existing roads or trails as travel corridors. Bird species will simply fly over the AFC Assessment Area. The culverts associated with the railroad and highway are expected to remain undisturbed during Project construction and operation, allowing for continued north-south wildlife movement through the site.

Areas of habitat fragmentation will occur in the southern portion of the AFC Assessment Area, including private lands not included in the Project Area that would be surrounded by the Project, railroad and I-40. The private lands in the northern portion of the AFC Assessment Area that are not a part of the Project Area would be constrained by fencing associated with the Project.

### **5.6.6 Operations and Maintenance Effects**

Potential effects on biological resources as a result of Project operations and maintenance include noise, collision hazards, potential wildlife mortality associated with evaporation ponds, and attraction of human subsidized predators. These potential effects are discussed further below.

#### **5.6.7 Noise**

The existing noise conditions at the Project Site varies with the distance from I-40 and the adjacent railroad. Noise varies from the mid 40s to nearly 80dBA  $L_{eq}$ . Construction activities will generate noise that will vary from 48 to 76dBA  $L_{eq}$ . The wildlife species observed in the Project vicinity are species that are considered tolerant of noise and would not be substantially affected by temporary construction noise. Species remaining on-site during Project operation are expected to adapt to the new noise levels that are less than the typical noise impact threshold of 60dBA  $L_{eq}$  hourly. The potential effects on wildlife from noise are considered less than significant due to the temporary nature (construction) and low levels during operation.

#### **5.6.8 Collision Hazards**

The receivers that are associated with the reflector bays may be used as perching sites for songbirds and raptors, but are not expected to present a substantial collision hazard. The 500-foot extension of the transmission line outside of the Project Site will not pose a significant collision hazard because of low use by special status species deemed most at risk for collision with transmission lines.

#### **5.6.9 Wildlife Mortality from Evaporation Ponds**

Evaporation ponds may become an attractive nuisance with a potential mortality risk to bird species. While not common, migratory ducks in North Dakota, Texas, and California have been reported to suffer from salt toxicosis after ingesting water from highly saline lakes or other water sources (Windingstad et. al. 1986, Gordus et al. 2002, Stolley and Meteyer 2004). Evaporation ponds in desert habitats can become highly saline as the water evaporates and could cause salt



toxicity if certain bird species (waterfowl) are allowed to access the ponds and drink the water. However, waterfowl are uncommon or absent in the Project vicinity. It is not likely that most resident birds and other small wildlife species would ingest large amounts of highly saline water from the evaporation ponds because they obtain their water from their food; therefore, wildlife impacts from evaporation ponds are not expected to be significant. Should the water contain substantial concentrations of trace elements, such as selenium or arsenic, the potential for wildlife mortality would increase. An initial monitoring program of the pond water is recommended (Bradford et al. 1991).

#### **5.6.10 Attraction of Human Subsidized Predators**

Substantial development within the desert often attracts ravens and coyotes at higher densities than in areas of undeveloped desert landscapes (Boarman et al. 2006). Operation of the facility could allow for predator densities to increase because of the increased presence of limited resources (e.g., freshwater, nest sites) that is currently absent from the site. This effect could extend to the adjacent lands within the assessment buffer. This indirect impact is considered significant.

Overall, the biological resource impacts from the project on special status biological resources have the potential to be significant in the absence of specific mitigation. These impacts, however, can be reduced to less than significant as a result of an effective biological resource mitigation program which includes a species relocation and/or reasonable habitat compensation plan.

#### **5.6.11 Cumulative Effects**

The Project and associated temporary access road, SCE Pisgah Substation expansion, and transmission line upgrade are not expected to result in significant cumulative effects on biological resource areas.

Cumulative effects on biological resources as a result of past, present, and reasonably foreseeable future actions, in combination with the Project, would mainly result from loss of habitat, constraints to wildlife movement corridors, habitat degradation, and other “edge” effects. BLM, in consultation with the USFWS and CDFG, has identified areas of biological concern and has designated DWMAs, ACECs, and Designated Critical Habitat to avoid significant cumulative impacts on biological resources in the region. The Project Site is located outside of these high value biological resource areas; therefore, the proposed Project would not contribute significantly to a cumulatively significant impact at a regional scale.

However, there are numerous pending BLM solar and wind applications (Figure 5.6-7, Regional Context Solar One Project) located near the Project Area that total approximately 138,600 acres for solar projects and 51,900 acres for wind projects. These solar and wind applications may impact habitat for desert tortoise, Mojave fringed-toed lizard, Nelson’s bighorn sheep, small-flowered androstephium, Emory’s cruxifixion-thorn, and white-margined beardtongue. Several applications are located within the ACEC to the southeast of the Project and within occupied bighorn sheep and desert tortoise habitat. Should all of the applications be approved, cumulative effects on biological resources from the pending applications would include significant impacts on wildlife movement east of the Project, potential degradation of bighorn sheep habitat, loss of

desert tortoise Designated Critical Habitat, and loss of habitat that supports special status plant species as well as raptor foraging areas. These impacts would cause significant cumulative effects at a regional scale if they are inconsistent with the federally approved West Mojave Plan.

The temporary access road is located within the I-40 ROW to the southeast of the Project Site; however, this is a temporary impact of approximately 70 acres including a 100-foot buffer for the 30-foot road. No special status species will be affected by the access road; therefore, the temporary impacts of the access road would not contribute to cumulative effects of the Project or the regional applications.

The proposed 65-mile transmission line upgrade will follow the existing transmission line corridor that connects the Pisgah Substation to the Lugo Substation. Because it will follow an existing transmission corridor, impacts on biological resources are anticipated to be minimal and not cumulatively significant. The transmission line upgrade would not contribute to a cumulatively significant impact at a regional scale.

### **5.6.12 Mitigation Measures**

After mitigation, the Project is not expected to result in significant effects on special status biological resources because it would not substantially affect, reduce the number of, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of these species, once the mitigation measures are implemented. Mitigation measures are identified and described in this section for the species-specific effects previously identified in this section. In addition, several general mitigation measures and BMPs are also provided that address means to mitigate potential indirect effects that could affect the biological resources of the site.

#### ***5.6.12.1 Species-Specific Mitigation Measures***

##### ***Desert Tortoise***

###### **BIO-1**

- Conduct a pre-construction clearance surveys to remove tortoise from the construction area, erect a temporary exclusionary fence around the construction area in occupied desert tortoise habitat, and assign roving biological monitors that will monitor the various construction crews in the active construction areas. Biological monitoring would also occur during access road improvements in occupied desert tortoise habitat.
- A tortoise relocation program shall be developed and approved by BLM and the wildlife agencies to minimize the direct mortality of tortoise during construction and operation.
- After tortoises are removed from the site, the perimeter fence would be designed to preclude tortoise from re-entering the site.
- Mitigation for permanent impacts on desert tortoise habitat would occur through an acreage-based compensatory mitigation formula as required by the BLM and USFWS approved West Mojave Plan and in consultation with CEC and CDFG. The formula includes payment into a habitat conservation fund. The amount of mitigation required is subject to final design and concurrence with the resource agencies.

- A biological monitor must be present during maintenance activities if occurring in occupied desert tortoise habitat located outside of the perimeter fence. Pre-maintenance clearance surveys followed by exclusionary fencing may also be required in occupied desert tortoise habitat, if the maintenance action requires significant ground or vegetation disturbance.
- Speed limits within the Project Site will be restricted to less than 25 MPH during construction and in areas surrounding the Project Site during operation of the Project.
- Monitor for the presence of ravens and other potential human subsidized predators of special status wildlife and implement a control plan if predator densities substantially increase in the vicinity of the facility. Institute BMPs to minimize the subsidization of predators (trash control, availability of freshwater, nest sites, etc.).
- Placement of kiosks or similar facilities with educational information on desert tortoise, ravens, trash, and impacts on desert tortoise, and the Project shall be installed at rest stops on I-40 near the AFC Assessment Area, subject to approval by Caltrans.

### ***Burrowing Owl***

#### **BIO-2**

- Pre-construction surveys for occupied owl burrows will be conducted during the non-breeding season prior to initial site disturbance. If an occupied owl burrow is detected, the owl will be passively displaced from the burrow, which would be subsequently collapsed to prevent reoccupation.
- A replace burrow(s) would be installed within the ACEC east of the Project if an occupied burrow is removed from the Project Site.
- Compensatory mitigation for tortoise habitat will also mitigate for burrowing owl habitat loss.

### ***Mojave Fringe-toed Lizard***

#### **BIO-3**

- A temporary enclosure fence around the one MFTL habitat patch within the Project Site will be erected to protect MFTL from adjacent construction activities.
- Compensatory mitigation for tortoise habitat will also benefit MFTL.

***American Badger*****BIO-4**

- Prior to construction, measures will be taken to minimize impacts on badgers that are encountered. If a badger and its active burrow are found on-site, a qualified biologist shall monitor the burrow during construction. It is likely that the badger will leave the site once construction begins. Once the burrow is confirmed to be unoccupied, it shall be collapsed.
- Compensatory mitigation for tortoise habitat will also benefit American badger.

***Nelson's Bighorn Sheep*****BIO-5**

- If active bighorn sheep are found on-site, a biologist should be present to monitor and minimize impacts on this species where practicable.
- Sheep watering holes in the Cady Mountains are maintained by a local conservation organization. Sheep management personnel access the Cady Mountains via Hector Road. The facility operator will maintain access to the Cady Mountains via Hector Road or other suitable alternative route.

***Raptor Nest Sites and Migratory Birds*****BIO-6**

The following mitigation measures are recommended to reduce or eliminate effects on raptors and migratory birds during Project construction and operation in compliance with the Migratory Bird Treaty Act. The Project will implement the suggested courses of action listed below to minimize affects to nesting raptors and migratory birds.

- Where practicable, ground-disturbing activities will be conducted outside the bird nesting season (February through July).
- Clearance surveys for nesting birds will be conducted before each phase of Project construction if the activity must be conducted during the bird breeding season.
- Trace element concentrations of the evaporation pond water should be monitored quarterly to determine if there is a concern regarding wildlife access to the pond water. If toxicity effects on wildlife become apparent, the evaporation ponds will be covered to minimize wildlife access. The covers should be designed to minimize attraction of predator and scavenger species.

***Wildlife Movement*****BIO-7**

- The perimeter fence should be located such that it does not block wildlife access to drainage culvert structures under the railroad and highway.
- East-west wildlife movement shall be maintained along the northern boundary of the Project Site.

***Special Status Plants*****BIO-8**

- Seeds and cuttings of special status plants should be collected during the appropriate season prior to site disturbance for propagation and relocation in order to conserve the genetic resource of the rare plants.
- Compensatory mitigation for tortoise habitat will also benefit rare plants.

**5.6.12.2 General Mitigation Measures*****Construction Monitoring, Vegetation Clearing*****BIO-9**

Provide mitigation construction monitoring by a qualified biologist. The biologist will be given authority to supervise the functions listed below.

- Erosion and sedimentation control will be implemented during Project construction to retain sediment on-site and to prevent violations of water quality standards.
- Diversion ditches and/or berms will be constructed as necessary to divert runoff from off-site areas around the construction site.
- Awareness training for desert tortoise, Mojave fringed-toed lizard, and other special status resources will be provided to all construction crews and operations staff.
- A biologist will monitor the construction activities daily during the initial site disturbance and at weekly intervals after all tortoises have been removed from the site. Exclusionary fencing will be checked frequently to ensure that they are effective barriers for tortoise.

Develop a weed management plan that is consistent with the Mojave Weed Management Area Memorandum of Understanding (MOU), which includes prevention, control, and eradication of weeds and invasive plant species, and educating the public about weed control in the region (DMG 2002a). The MOU identifies a priority list of invasive species to control in the Mojave.

**5.6.13 Compliance with LORS**

Laws, ordinances, regulations, and standards (LORS) that are applicable or potentially applicable for biological resources associated with the Project are discussed below. Project construction and operation will adhere to the LORS pertinent to biological resources.

**5.6.13.1 Federal*****Endangered Species Act of 1973: 16 United States Code Section 1531 et seq.; 50 Code of Federal Regulations Parts 17 and 222***

The Endangered Species Act provides for the protection of threatened or endangered plants and animals and their determined critical habitats. The USFWS is the agency responsible for administering this act, designating critical habitat, and determining if a species should have a change in listing status. The Project will include full mitigation for effects to federally listed threatened or endangered species or their designated critical habitats and, therefore, would not violate the Endangered Species Act. Section 7 consultation in association with the National Environmental Policy Act of 1969 (NEPA) process would be conducted.

***National Environmental Policy Act of 1969: 42 United States Code Section 4321 et seq.***

NEPA requires an evaluation of the environmental effects of projects taking place on federal lands or receiving federal funding. BLM is the administering agency for the above authority. Evaluation determined that significant effects would occur to biological resources, and that the mitigation would reduce effects to biological resources to a less-than-significant level.

***Migratory Bird Treaty Act: 16 United States Code Sections 703-711; 50 Code of Federal Regulations Subchapter B***

The Migratory Bird Treaty Act protects most native birds, their eggs, and their nests, and prohibits taking that is not in accordance with federal regulations. The USFWS is responsible for administering this act. Because the Project is not expected to result in the deaths of birds or the destruction of any active nests, the Project will not violate the Migratory Bird Treaty Act.

***Fish and Wildlife Coordination Act: 48 Stat. 401, amended; 16 United States Code Section 661 et seq.***

The Fish and Wildlife Coordination Act requires all federal agencies to coordinate with the USFWS to preserve fish and wildlife when implementing federal actions. The USFWS is responsible for administering this act. Since the USFWS will be coordinating with the BLM and other federal agencies during the permitting phase, the Project will be in compliance with this law.

***Clean Water Act of 1977: 33 United States Code Sections 1251-1376; 30 Code of Federal Regulations Section 330.5(a)(26)***

The CWA protects wetlands, regulates discharges of pollutants, sets water quality standards for individual pollutants, and provides a framework for permitted pollutant discharge from a point source. The administering agencies for the CWA are the Environmental Protection Agency, USACE, and Regional Water Quality Control Board. Permit processes for the Project will be conducted to comply with the CWA if the drainages associated with the Project are deemed by the USACE to be jurisdictional Waters of the U.S.

***5.6.13.2 State***

***California Endangered Species Act of 1984: California Fish and Game Code Sections 2050-2098***

The California Endangered Species Act provides for the protection and management of plant and animal species listed as threatened or endangered, or designated as candidates for such listing. This act requires consultation between the CDFG and other state agencies to ensure that projects do not jeopardize the continued existence of threatened or endangered species or habitats essential for the continued survival of any threatened or endangered species. The administering agency for this act is the CDFG. No species listed under this act would be affected by this Project; thus, the Project will be in compliance with this act.

***California Fish and Game Code Sections 1600-1609***

Sections 1600-1609 of the Fish and Game Code requires any person who proposes a Project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed to notify the CDFG before beginning the Project. Such a change requires a Streambed Alteration Agreement with the CDFG per Section 1602, and review in accordance with CEQA (Public Resources Code, §21000 *et seq.*). Solar One will obtain a Streambed Alteration Agreement (if required by BLM for federal lands or if streambeds on private property will be modified) before work beginning on the Project; thus, the Project will be in compliance with this regulation.

***California Fish and Game Code Section 3503/3505.5***

This code section prohibits the taking and possessing of bird eggs and nests. The administering agency for this section is the CDFG. Because nesting birds will not be disturbed and any substantial vegetation clearing will be limited to the bird non-breeding season, the Project will be in compliance with this regulation.

***California Fish and Game Code Sections 3511, 4700, 5050, and 5515***

These code sections prohibit the taking of birds, mammals, reptiles, and fish listed as fully protected. The administering agency for these is the CDFG. Because construction and maintenance of the Project will not affect any fully protected species, the Project will be in compliance with this regulation.

***California Environmental Quality Act of 1970, Public Resources Code Section 21000 et seq.***

CEQA provides for protection of the environment in the state of California. The administering agency for the above authority with regards to this Project is the CEC. Because effects to natural resources on this Project will be minimized or fully mitigated, the Project is in compliance with CEQA.

***California Public Resources Code Section 25523(a): 20 California Code of Regulations Sections 1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Article I, Appendix B, Part (i)***

These code sections require the CEC to protect environmental quality. The administering agency for the above sections is the CEC with comment by the CDFG. Because effects to rare or endangered species at the Project Site will be fully mitigated, the Project will be in compliance with these code sections.

***5.6.13.3 Local***

Currently, the BLM has approved and is implementing two habitat management plans that have jurisdiction over the Project vicinity. These plans include the California Desert Conservation Area Plan (BLM 1980, as amended), and the Flat-Tailed Horned Lizard Rangeland Management Strategy (Flat-Tailed Horned Lizard Working Group 1997). The Project is consistent with both of these BLM planning documents.

In addition to the above habitat management plans, San Bernardino County also has a General Plan and a Land Use Ordinance (Title 9) to provide comprehensive land-use regulations for all unincorporated areas of San Bernardino County. These regulations promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of San Bernardino County. The Project will follow the LORS described in these plans. Table 5.6-3, Summary of LORS – Biological Resources, lists all applicable LORS.



**Table 5.6-3  
Summary of LORS – Biological Resources**

Applicable Law	Administering Agency	Requirements/Compliance
<b>Federal Jurisdiction</b>		
Endangered Species Act of 1973; 16 USC 1531 <i>et seq.</i> ; 50 CFR Parts 17 and 222.	USFWS	Protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats (terrestrial and avian species).
National Environmental Policy Act of 1969 (NEPA); 42 USC 4321 <i>et seq.</i>	USFWS	Consultation Requirement: Section 7 Endangered Species Act consultation with USFWS.
Migratory Bird Treaty Act; 16 USC 703-711; 50 CFR Subchapter B; Migratory Birds (Fish and Game Code, Section 3513).	USFWS; CDFG	Analysis of effects to migratory birds.
CWA of 1977: 33 USC Section 1251 – 1376; 30 CFR Section 330.5(a)(26).	Environmental Protection Agency, USACE, and RWQCB	Nationwide 404 permit from the USACE and CWA 401 water quality certification from the RWQCB for compliance with CWA.
Fish and Wildlife Coordination Act; 16 USC 661-666.	USFWS	Conservation of fish and wildlife and protection of wetlands.
<b>State Jurisdiction</b>		
California Endangered Species Act of 1984; California Fish and Game Code 2050-2098.	CDFG	Consultation requirement; protects California's rare, threatened, and endangered species.
California Fish and Game Code 3511, 4700, 5050, 5515.	CDFG	No taking of fish, reptiles, mammals, and birds listed as fully protected.
California Fish and Game Code 3503, 3503.5.	CDFG	No taking of birds, nests, or eggs of birds.
CCR (Title 14, Sections 670.2 and 670.5).	CDFG	Lists the plants and animals that are classified as rare, threatened, or endangered in California.
CEQA: California Public Resources Code 21000 <i>et seq.</i>	California Energy Commission	Disclosure of environmental effects.
California Fish and Game Code 1600-1609.	CDFG	Lake/Streambed Alteration Agreement for alteration of streambed channel.
<b>Local Jurisdiction</b>		
California Desert Conservation Area Plan	BLM	Requires that proposed development projects are compatible with policies set forth in the plan, which provide for the protection, enhancement, and sustainability of fish and wildlife species, wildlife corridors, riparian and wetland habitats, and native vegetation resources.

**Table 5.6-3**  
**Summary of LORS – Biological Resources**

Applicable Law	Administering Agency	Requirements/Compliance
San Bernardino County General Plan	San Bernardino County	Requires that proposed development projects are compatible with policies set forth in the Conservation and Open Space Elements, which provide direction regarding the conservation, development, and utilization of the County of San Bernardino's natural resources. Its objective is to prevent the wasteful exploitation, destruction and neglect of resources.

Source: URS Corporation, 2008.

Notes:

BLM	=	Bureau of Land Management
CCR	=	California Code of Regulations
CDFG	=	California Department of Fish and Game
CFR	=	Code of Federal Regulations
CWA	=	Clean Water Act
LORS	=	laws, ordinances, regulations, and standards
RWQCB	=	Regional Water Quality Control Board
USC	=	United States Code
USACE	=	United States Army Corps of Engineers
USFWS	=	United States Fish and Wildlife Service

## 5.6.13.4 Agencies and Agency Contacts

Agencies with jurisdiction to issue applicable permit and/or enforce LORS related to biological resources are shown in Table 5.6-4, Agency Contact List for LORS.

**Table 5.6-4**  
**Agency Contact List for LORS**

	Agency	Contact	Address	Telephone
1	United States Fish and Wildlife Service	Ray Bransfield	United States Fish and Wildlife Service – 2140 Eastman Avenue, Suite 100 Ventura, CA 93003	(805) 644-1766
2	California Department of Fish and Game	Becky Jones, Tonya Moore	California Department of Fish and Game – Inland Desert Regional 3602 Inland Empire Boulevard Ontario, CA 91764	(661) 285-5867 (760) 955-8139
3	Bureau of Land Management	Chris Otahal	Bureau of Land Management 2601 Barstow Road Barstow, CA 9231	(760) 252-6000

Source: URS Corporation, 2008.

Note:

LORS = laws, ordinances, regulations, and standards

## 5.6.13.5 Permits Required and Permitting Schedule

The permits required for this Project are listed in Table 5.6-5, Applicable Permits.

**Table 5.6-5  
Applicable Permits**

Responsible Agency	Permit/Approval	Schedule
USFWS Endangered Species Act of 1973 and implementing regulations, Title 16 USC §1531 <i>et seq.</i> , Title 50 CFR §17.1 <i>et seq.</i>	Through the Section 7 process, issues biological opinion with conditions or approval after review of Project effects and mitigation measures.	Obtain a biological opinion for take of desert tortoise habitat and translocation of tortoise from the Project Site. Implement BIO-1 and BIO-9 mitigation measures.
USFWS Migratory Bird Treaty Act (MBTA) 16 USC §§703-711.	Prohibits the take of migratory birds, as specified at 50 CFR Part 10. Will avoid take of active nests.	Implement BIO-2, BIO-6 and BIO-9 measures.
CDFG Fish and Game Fully Protected Species Includes: §3511: Fully Protected Birds; §4700: Fully CDFG Protected Mammals; §5050: Fully Protected Reptiles and Amphibians; §5515: Fully Protected Fishes.	Issues guidance after Project effect assessment (CEQA) review. Note: no legal means exists whereby take of California Fully Protected species may be authorized by CDFG.	Implement all BIO mitigation measures.
CDFG California Endangered Species Act of 1984, Fish and Game Code, §2050 through §2098.	Issues guidance after Project effect assessment (CEQA) review.	Obtain a 2081.1 MOU for take of desert tortoise habitat and translocation of tortoise from the Project Site. Implement BIO-1 and BIO-9 mitigation measures.
CDFG Fish & Game Code 1602.	Streambed Alteration Agreement.	Execute an agreement after California Energy Commission certification and before construction on private property or if required by the Bureau of Land Management.

Notes:

- CDFG = California Department of Fish and Game
- CEQA = California Environmental Quality Act of 1970
- CFR = Code of Federal Regulations
- USC = United States Code
- USFWS = United States Fish and Wildlife Service

## 5.6.14 References

American Ornithologists' Union (AOU). 1998. Check-list of North American birds. Seventh edition. American Ornithologists' Union, Washington, DC. 829 pp.

- Atkinson, A.J., P.C. Trenham, R.N. Fisher, S.A. Hathaway, B.S. Johnson, S.G. Torres, and Y.C. Moore. 2004. Designing monitoring programs in an adaptive management context for regional multiple species habitat conservation plans. USGS Western Ecological Research Center, Sacramento, California.
- Baldwin, B. G., S. Boyd, B. J. Ertter, R. W. Patterson, R. J. Rosatti, and D. H. Wilken, eds. 2002. The Jepson Desert Manual, Vascular Plants of Southeastern California. University of California Press, California. 624 pp.
- Berry, K.H. 1972. Report on tortoise relocation Project, July 1971 to November 1971. Division of Highways, State of California, in partial fulfillment of Contract F-9353.
- Berry, K.H. 1975. Desert tortoise relocation Project: status report for 1973. Department of Transportation, State of California. Contract F-9353. 37 pp.
- Berry, K.H. 1984. The status of the desert tortoise (*Gopherus agassizii*) in the United States. Rept. to the U.S. Fish and Wildlife Service from the Desert Tortoise Council on Order No. 11310-0083-81. 838 pp.
- Berry, K.H. 1986. Desert tortoise (*Gopherus agassizii*) research in California, 1976-1985. *Herpetologica* 42:62-67.
- Berry, K.H. 1999. Desert tortoise research projects in the Mojave and Colorado deserts of California: Status, trends, demography, and habitats. Presentation at the Mojave Desert Science Symposium. U.S. Geological Survey, Western Ecological Research Center.
- BirdLife International (2008) Species factsheet: *Toxostoma bendirei*. Downloaded from <http://www.birdlife.org> on 25/8/2008
- BLM. 2006. West Mojave Plan/EIS. [http://www.blm.gov/ca/news/2005/03/nr/CDD34\\_westmojaveplan.html](http://www.blm.gov/ca/news/2005/03/nr/CDD34_westmojaveplan.html)
- Boarman, W.I., M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. *Journal of Arid Environments*, Volume 67, Supplement 1, Pages 248-261
- Bond, M. 2003. Principles of Wildlife Corridor Design. Center for Biological Diversity <http://www.biologicaldiversity.org/publications/papers/wild-corridors.pdf>
- Bradford, D.F., L.A. Smith, D.S. Drezner, and J.D. Shoemaker. 1991. Minimizing contamination hazards to waterbirds using agricultural drainage evaporation ponds. *Environmental Management* 15 (6): 785-795.

- Brooks, M.L., and J. R. Matchett. 2002. Sampling methods and trapping success trends for the Mohave ground squirrel, *Spermophilus mohavensis*. California Fish and Game 88(4):165–177.
- Burge, B.L. and W.G. Bradley. 1976. Population density, structure, and feeding habits of the desert tortoise (*Gopherus agassizii*) on a low desert study area in southern Nevada. In: N.J. Engberg, S. Allan, and R.L. Young (eds.). Desert Tortoise Council Proceedings of the 1976 Symposium. pp. 51-74.
- California Department of Fish and Game (CDFG). 2008. California Natural Diversity Data Base. Sacramento, CA.
- California Department of Fish and Game (CDFG). July 2008. California Natural Diversity Data Base Special Vascular Plants, Bryophytes, and Lichens List. Sacramento, CA.
- California Department of Fish and Game Habitat Conservation Planning Branch. 1983. California's Plants and Animals, Le Conte's Thrasher. <http://www.dfg.ca.gov/biogeodata/>
- California Department of Fish and Game. 1991. Annual Report on the status of California State Listed Threatened and Endangered Animals and Plants. Sacramento, California. 192 pp.
- California Department of Fish and Game. 1994. Amphibian and Reptile Species of Special Concern in California. CDFG, Rancho Cordova, California. 255 pp.
- California Native Plant Society. 1988. Inventory of Rare and Endangered Vascular Plants of California. Special Publication No. 5, Sacramento, California. 168 pp.
- Collins, J.N., E.D. Stein, M. Sutula, R. Clark, A.E. Fetscher, L. Brenier, C. Grosso, and A. Wiskind. 2006. California Rapid Assessment Method (CRAM) for Wetlands and Riparian Areas. Version 4.2.3.
- Collins, C.T. 1979. The ecology and conservation of burrowing owls. Pages 6-17 Proceedings of the National Audubon Society symposium of owls of the west, their ecology and conservation, Scheaffer, P.P. and S.M. Ehlers (editors). National Audubon Society Western Education Center, Tiburon, CA.

- Corps (Environmental Laboratory), 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Corps, 2001. Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest. U.S. Army Corps Engineers, South Pacific Division.
- Corps, 2004. Review of Ordinary High Water Mark Indicators for Delineating Arid Streams in the Southwestern United States. Edited by Robert W. Lichvar and James S. Wakeley. ERDC TR-04-1. January 2004.
- Corps, 2008a. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Robert W. Lichvar and Shawn M. McColley. ERDC/CRREL TR-08-12. August 2008.
- Corps, 2008b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. September 2008.
- Coombs, E. 1977. Implications of behavior and physiology on the desert tortoise, *Gopherus agassizii*, concerning their declining populations in southwestern Utah, with inferences on related desert ectotherms. Study in conjunction with BLM, Cedar City, Utah.
- DeFalco, L.A., and M. Brooks. 1999. *Ecology and management of exotic annual plant species*. Presentation at the Mojave Desert Science Symposium. U.S. Geological Survey, Western Ecological Research Center.
- DMG (Desert Managers Group). 2002a. Memorandum of Understanding, Mojave Weed Management Area.
- England, A.S., and W.F. Laudenslayer, Jr. 1995. Birds of the California Desert. pp 337-372 in J. Latting and P.G. Rowlands (eds.). *The California Desert: An Introduction to Natural Resources and Man's Impacts*. June Latting Books, Riverside, Calif. 528 pp.
- Garrett, K. and J. Dunn. 1981. *Birds of Southern California*. Los Angeles Audubon Society, Los Angeles, California. 408 pp.
- Gordus, A.G., H.L. Shivaprasad, and P.K. Swift. 2002. Salt toxicosis in ruddy ducks that winter on an agricultural evaporation basin in California. *Journal of Wildlife Diseases*, 38(1): 124-131.
- Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Sacramento: The Resources Agency, California Department of Fish and Game.
- Jennings, M.R. and M.P. Hayes, 1994. Amphibian and reptile species of special concern in California. Final report to the CA. Dept. Fish and Game, Inland Fisheries Div., Rancho Cordova, California, under Contract (8023). Iii + 255 pp.

- Johnsgard, 1988. North American Owls: Biology and Natural History. Smithsonian Inst. Press. Washington D.C. 295pp.
- Johnsgard, P. 1990. Hawks, Eagles and Falcons of North America. Washington DC: Smithsonian Institution.
- Karl, A. E. 1983. The Distribution, Relative Densities, and Habitat Associations of the Desert Tortoise, *Gopherus agassizii*, in Nevada. M.S. Thesis, California State Univ., Northridge. 111 pp.
- Kays R. W. and D. E. Wilson. 2002. Mammals of North America. Princeton University Press, Princeton. 240 pp.
- Laudenslayer, Jr., W.F., K.B. Buckingham, and T.A. Rado. 1995. Mammals of the Deserts of California. pp 373-3964 in J. Latting and P.G. Rowlands (eds.). The California Desert: An Introduction to Natural Resources and Man's Impacts. June Latting Books, Riverside, Calif. 528 pp.
- Lindzey, F.G. 1978. Movement patterns of badgers in northwestern Utah. Journal of Wildlife Management 42: 418-422.
- Long, C.A. 1973. *Taxidea taxus*. Mammalian Species 26: 1-4. Published by the American Society of Mammalogists.
- Lowe, C.H. 1994. An overview of the herpetofauna of the Sonoran Desert. In: Herpetology of North American Deserts: Proceedings of a Symposium. Southwestern Herpetologist's Society, Excelsior, MN. pp. 71-78.
- Marlow R.W. 1979. Energy relations in the desert tortoise *Gopherus agassizii*. Ph.D. dissertation, University of California, Berkeley.
- Mayhew, W.W. 1995. Amphibians of the California Desert. In: J. Latting and P.G. Rowlands (eds.): The California Desert: An Introduction to Natural Resources and Man's Impact. U.S. Press, Riverside. pp. 305-316.
- Medica, P.A., C.L. Lyons, and F.B. Turner. 1982. A comparison of 1981 populations of desert tortoises (*Gopherus agassizii*) in grazed and ungrazed areas in Ivanpah Valley, California. In: K. Hashagan (ed.): Desert Tortoise Council Proceedings of the 1982 Symposium. pp. 99-124.
- Messick, J.P.; Hornocker, M.G. 1981. Ecology of the badger in southwestern Idaho. Wildlife Monographs 76: 1-53.
- Munz, P.A. 1974. A Flora of Southern California. University of California Press. 1086 pp.

- Nussear, K.E., T.C. Esque, J.E. Heaton, M.E. CABLK, K.K. Drake, C. Valentin, J.L. Yee, P.A. Medica. 2008. Are Wildlife Detector Dogs Or People Better At Finding Desert Tortoises (*Gopherus agassizii*)? Herpetological Conservation and Biology 3(1): 103-115.
- Pister, E.P. 1995. Fishes of the California Desert. Pages 285-304 in: J. Latting and P.G. Rowlands (eds.): The California Desert: An Introduction to Natural Resources and Man's Impact. U.C. Press, Riverside.
- Remsen, J. V., Jr. 1978. Bird species of special concern in California. California Department of Fish and Game, Sacramento. Wildlife. Management Administration. Report No. 78-1. 54 pp.
- Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, Colorado.
- San Bernardino General County Plan. 2008.  
<http://www.co.san-bernardino.ca.us/sbcountygeneralplan/>.
- Sawyer, J. O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. 471 pp.
- Schwartzmann, James L., and Robert D. Ohmart. 1977. Radiolocating free-ranging desert tortoises (*Gopherus agassizii*): Maximizing transmitter range and longevity. pp. 57-58.
- Sheppard, J. M. Le Conte's Thrasher (*Toxostoma lecontei*). In The Birds of North America, No. 230 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D. C.
- Shuford, W.D., and Gardeli, T. editors. 2008. California Birds Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Sibley, D. A. 2003. The Sibley Field Guide to Birds of Western North America. Alfred A. Knopf, New York. 471 pp.
- Skinner, M.W. and B.M. Pavlik. 1994. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. CNPS Special Publication No. 1, Sacramento, California. 338 pp.
- Smithsonian National Museum of Natural History (SNMNH). Retrieved August 2008. North American Mammals, Bighorn Sheep. <http://www.mnh.si.edu/mna/main.cfm>
- Snow, C. 1973. Habitat management service for endangered species. Rep. No. 5, southern bald eagle and northern bald eagle. US Dep. Inter., Bur. Land Manage. Portland, Oregon. 58 pp.
- Stebbins, R. C. 2003. Western Reptiles and Amphibians. Houghton Mifflin Company, New York. 514 pp.



- Stewart, G.R. 1994. An overview of the Mojave Desert and its herpetofauna. In: Herpetology of North American Deserts: Proceedings of a Symposium. Southwestern Herpetologist's Society, Excelsior, MN. pp. 55-70.
- Stolley, D.S. and C.U. Meteyer. 2004. Peracute Sodium Toxicity in Free-ranging Black-bellied Whistling Duck Ducklings. *Journal of Wildlife Diseases*, 40(3): 571-574.
- Terres, J. 1980. *The Audubon Society: Encyclopedia of North America Birds*. New York: The Audubon Society.
- U.S. Bureau of Land Management. 1989. U.S. Bureau of Land Management. Temporary emergency quarantine in the Desert Tortoise Natural Area and western Rand Mountain Area of Critical Environmental Concern. *Federal Register* 54(181).
- U.S. Bureau of Reclamation. 1996. Description and assessment of operations, maintenance and special management status species of the Lower Colorado River. Draft biological assessment prepared for the U.S. Fish and Wildlife Service and the Lower Colorado River Multi-species Conservation Program. 226 pp.
- U.S. Department of Energy. 2008. Porter-Cologne Water Quality Control Act. 127 pp.
- U.S. Fish and Wildlife Service. 1994b. Proposed Desert Wildlife Management Areas for recovery of the Mojave population of the desert tortoise. Prepared for the U.S. Fish and Wildlife Service, Portland, Oregon. 100 pp.
- U.S. Fish and Wildlife Service. 1994a. Recovery Plan for the Desert Tortoise (Mojave Population). Prepared for the U.S. Fish and Wildlife Service, Portland, Oregon. 73 pp. + append.
- United States Department of Interior, Bureau of Land Management. 2005. Final Environmental Impact Report and Statement for the Western Mojave Plan; A Habitat Conservation Plan and California Desert Conservation Area, Plan Amendment. Volume 1. January 2005. United States Geological Survey 2004. Website: [pubs.usgs.gov](http://pubs.usgs.gov). Accessed February, 2007.
- United States Department of Interior, Bureau of Land Management. 2001. Environmental Assessment Finding of No Significant Impact for Kramer Sub-Region of the West Mojave Coordinated Management Plan Temporary Motorized Vehicle Use Closure and Vehicle Routes Identification, San Bernardino County, California. Environmental Assessment CA-680-02-18. December 2001.
- United States Geological Survey. 1973. Photo-revised. 7.5' Series Topographic Maps: Twelve Gauge Lake and Kramer Hills.
- United States Geological Survey. 2004. Website: [pubs.usgs.gov](http://pubs.usgs.gov). Accessed February, 2006.
- Unitt, P. 1984. *The Birds of San Diego County*. San Diego Society of Natural History. Memoir 13.

West Mojave Planning Team. 1999. Current management situation of special status species in the West Mojave Planning Area. March 1999. 254 pp.

Windingstad, R.M., F.X. Kartch, R.K. Stroud, and M.R. Smith. 1987. Salt Toxicosis in Waterfowl in North Dakota. *Journal of Wildlife Diseases*, 23(3):443-446.

Woodbury, A. M. and R. Hardy. 1948. Studies of the desert tortoise, *Gopherus agassizi*. *Ecological Monographs*. 81:146–200.

Zarn, M. 1974. Habitat management series for unique or endangered species: Report Number 11, Burrowing Owl (*Speotyto cunicularia hypugaea*). US Bureau of Land Management, Denver, Colorado, USA.

Zeiner, D. C., W. Laudenslayer Jr., K. Mayer, and M. White., eds. 1990. California's Wildlife, Vol. 2, Birds. Calif. Dep. Fish and Game, Sacramento. 732 pp.

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One		Technical Staff:			
Project Manager:				Docket:			Technical Senior:			
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>	<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>				
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.			Section 5.6.1 through Section 5.6.12 Figure 5.6-1 through Figure 5.6-5 Table 5.6-1 and 5.6-2 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (A)	A regional overview and discussion of terrestrial and aquatic biological resources, with particular attention to sensitive biological resources within ten (10) miles of the project. Include a map at a scale of 1:100,000 (or other suitable scale) showing sensitive biological resource location(s) in relation to the Project Site and related facilities and any boundaries of a local Habitat Conservation Plan or similar open space land use plan or designation. Sensitive biological resources include the following:			Section 5.6.1.2 Section 5.6.4 Section 5.6.5 Figure 5.6-3 through 5.6-7 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (A) (i)	species listed under state or federal Endangered Species Acts;			Section 5.6.1.2 Section 5.6.4 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (A) (ii)	resources defined in sections 1702(q) and (v) of Title 20 of the California Code of Regulations;			Section 5.6.1.2 Table 5.6-1 Table 5.6-5						
Appendix B (g) (13) (A) (iii)	species identified as state Fully Protected;			Section 5.6.1.2 Appendix Y, Biological Resources Technical Report						

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One		Technical Staff:			
Project Manager:				Docket:			Technical Senior:			
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>		<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>			
Appendix B (g) (13) (A) (iv)	species covered by Migratory Bird Treaty Act;			Section 5.6.1.2 Section 5.6.4.2 Section 5.6.9 Section 5.6.12.1 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (A) (v)	species and habitats identified by local, state, and federal agencies as needing protection, including but not limited to those identified by the California Natural Diversity Database, or where applicable, in Local Coastal Programs or in relevant decisions of the California Coastal Commission; and			Section 5.6.1.2 Section 5.6.4 Figure 5.6-3 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (A) (vi)	fish and wildlife species that have commercial and/or recreational value.			N/A						
Appendix B (g) (13) (B)	Include a list of the species actually observed and those with a potential to occur within 1 mile of the Project Site and 1,000 feet from the outer edge of linear facility corridors. Maps or aerial photographs shall include the following:			Figure 5.6-3 Figure 5.6-4 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (B) (i)	Detailed maps at a scale of 1:6,000 or color aerial photographs taken at a recommended scale of 1 inch equals 500 feet (1:6,000) with a 30 percent overlap that show the proposed Project Site and related facilities, biological resources including, but not limited to, those found during project-related field surveys and in records from the California Natural Diversity Database, and the associated areas where biological surveys were conducted. Label the biological resources and survey areas as well as the project facilities;			Figure 5.6-1 through Figure 5.6-4						

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One		Technical Staff:			
Project Manager:				Docket:			Technical Senior:			
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>	<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>				
Appendix B (g) (13) (B) (ii)	A depiction of the extent of the thermal plume at the surface of the water if cooling water is proposed to be discharged to a water source. Provide the location for the intake and discharge structures on an aerial photograph(s) or detailed maps. Water sources include, but are not limited to, waterways, lakes, impoundments, oceans, bays, rivers, and estuaries; and			N/A						
Appendix B (g) (13) (B) (iii)	An aerial photo or wetlands delineation maps at a scale of (1:2,400) showing any potential jurisdictional and non-jurisdictional wetlands delineated out to 250 feet from the edge of disturbance if wetlands occur within 250 feet of the Project Site and/or related facilities that would be included with the US Army Corps of Engineers Section 404 Permit application. For projects proposed to be located within the coastal zone, also provide aerial photographs or maps as described above that identify wetlands as defined by the Coastal Act.			NA						
Appendix B (g) (13) (C)	A discussion of the biological resources at the proposed Project Site and related facilities. Related facilities include, but are not limited to, laydown and parking areas, gas and water supply pipelines, transmission lines, and roads. The discussion shall address the distribution of vegetation community types, denning or nesting sites, population concentrations, migration corridors, breeding habitats, and other appropriate biological resources including the following:			Section 5.6.1.2 Section 5.6-4 Section 5.6-5 Figure 5.6-1 through 5.6-5 Table 5.6-1 and 5.6-2						
Appendix B (g) (13) (C) (i)	A list of all the species actually observed;			Appendix Y, Biological Resources Technical Report						

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One		Technical Staff:			
Project Manager:				Docket:			Technical Senior:			
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>		<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>			
Appendix B (g) (13) (C) (ii)	A list of sensitive species and habitats with a potential to occur (as defined in (A) above); and			Figure 5.6-3 through Figure 5.6-5 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (C) (iii)	If cooling water is taken directly from or discharged to a surface water feature source, include a description of the intake structure, screens, water volume, intake velocity hydraulic zone field of influence, and the thermal plume dispersion area as depicted in response to B(ii) above. Describe the thermal plume size and dispersion under high and low tides, and in response to local currents and seasonal changes. Provide a discussion of the aquatic habitats, biological resources, and critical life stages found in these affected waters. For repower projects that anticipate no change in cooling water flow, this information shall be provided in the form of the most recent federal Clean Water Act 316(a) and (b) studies of entrainment and impingement impacts that has been completed within the last five (5) years. For new projects or repower projects proposing to use once-through cooling and anticipating an increase in cooling water flow, provide a complete impingement and entrainment analysis per guidance in (D)(ii), below.			N/A						

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One			Technical Staff:		
Project Manager:				Docket:				Technical Senior:		
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>		<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>			
Appendix B (g) (13) (D)	A description and results of all field studies and seasonal surveys used to provide biological baseline information about the Project Site and associated facilities. Include copies of the California Natural Diversity Database records and field survey forms completed by the applicant's biologist(s). Identify the date(s) the surveys were completed, methods used to complete the surveys, and the name(s) and qualifications of the biologists conducting the surveys. Include:			Section 5.6.1 through Section 5.6.5 Table 5.6-2 Figure 5.6-2 through Figure 5.6-5 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (D) (i)	Current biological resources surveys conducted using appropriate field survey protocols during the appropriate season(s). State and federal agencies with jurisdiction shall be consulted for field survey protocol guidance prior to surveys if a protocol exists;			Section 5.6.1.1 Appendix Y, Biological Resources Technical Report						
Appendix B (g) (13) (D) (ii)	If cooling water is proposed to be taken directly from or discharged to a surface water feature source, seasonal aquatic resource studies and surveys shall be conducted. Aquatic resource survey data shall include, but is not limited to, fish trawls, ichthyoplankton and benthic sampling, and related temperature and water quality samples. For new projects or repower projects anticipating a change in cooling water flows, sampling protocols shall be provided to the Energy Commission staff for review and concurrence prior to the start of sampling. For repower projects not anticipating a change in cooling water flows, this information shall be provided in the form of the most recent federal Clean Water Act 316(b) impingement and entrainment impact study completed within five (5) years of the AFC filing date; and			N/A						

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One		Technical Staff:			
Project Manager:				Docket:			Technical Senior:			
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>		<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>			
Appendix B (g) (13) (D) (iii)	If the project or any related facilities could impact a jurisdictional or non-jurisdictional wetland, provide completed Army Corps of Engineers wetland delineation forms and/or determination of wetland status pursuant to Coastal Act requirements, name(s) and qualifications of biologist(s) completing the delineation, the results of the delineation and a table showing wetland acreage amounts to be impacted.			N/A						
Appendix B (g) (13) (E)	Impacts discussion of the following:									
Appendix B (g) (13) (E) (i)	all impacts (direct, indirect, and cumulative) to biological resources from Project Site preparation, construction activities, plant operation, maintenance, and closure. Discussion shall also address sensitive species habitat impacts from cooling tower drift and air emissions;			Section 5.6. through Section 5.6.11 Table 5.6-2						
Appendix B (g) (13) (E) (ii)	facilities that propose to take water directly from, and/or discharge water to surface water features, daytime and nighttime impacts from the intake and discharge of water during operation, water velocity at the intake screen, the intake field of influence, impingement, entrainment, and thermal discharge. Provide a discussion of the extent of the thermal plume, effluent chemicals, oxygen saturation, intake pump operations, and the volume and rate of cooling water flow at the intake and discharge location; and			N/A						
Appendix B (g) (13) (E) (iii)	Methods to control biofouling and chemical concentrations, and temperatures that are currently being discharged or will be discharged to receiving waters.			N/A						

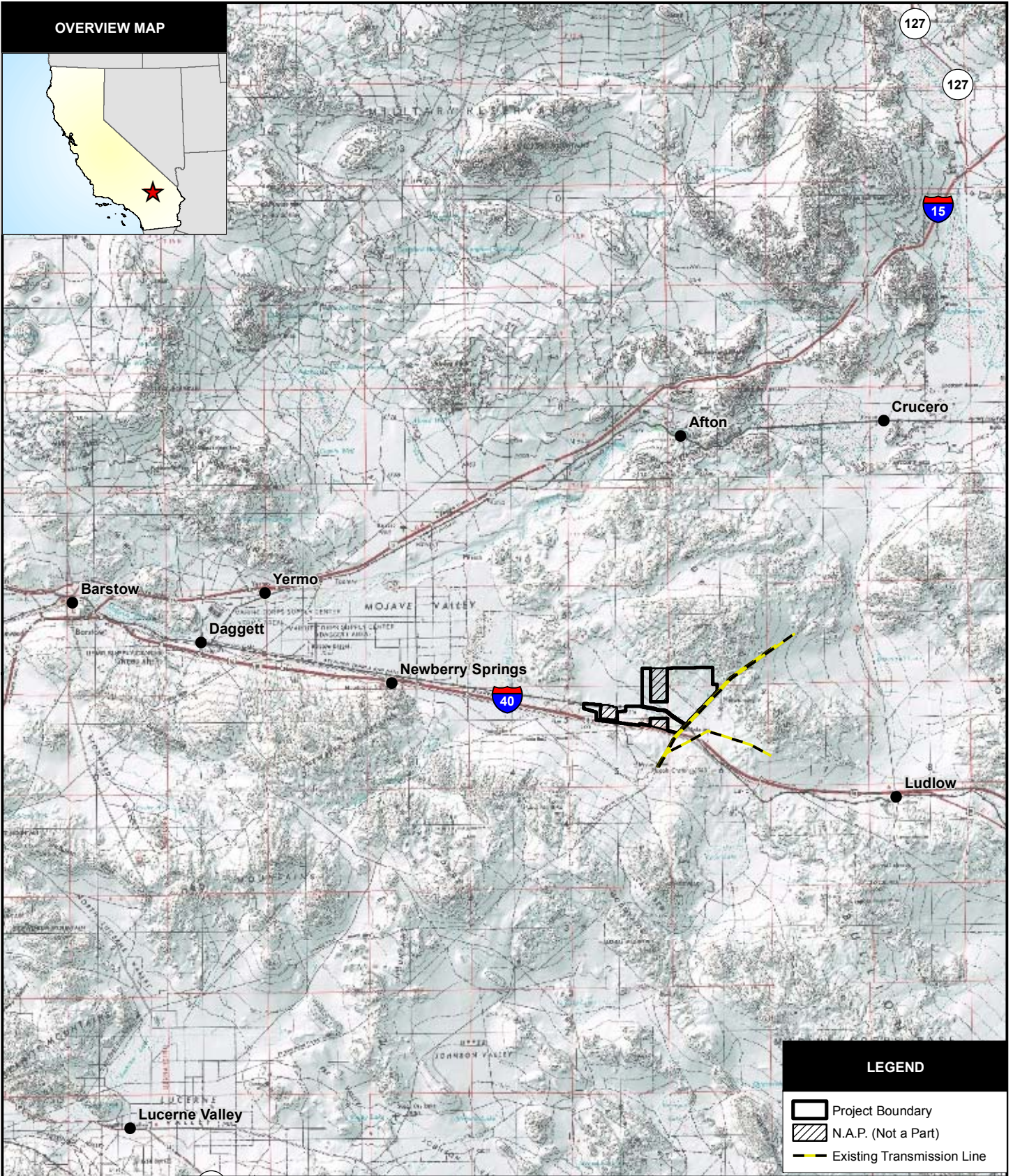


Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One			Technical Staff:		
Project Manager:				Docket:				Technical Senior:		
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>	<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>				
Appendix B (g) (13) (F)	A discussion of all feasible mitigation measures including, but not limited to the following:			Section 5.6.12						
Appendix B (g) (13) (F) (i)	All measures proposed to avoid and/or reduce adverse impacts to biological resources;			Section 5.6.12						
Appendix B (g) (13) (F) (ii)	All off-site habitat mitigation and habitat improvement or compensation, and an identification of contacts for compensation habitat and management;			Section 5.6.12						
Appendix B (g) (13) (F) (iii)	Design features to better disperse or eliminate a thermal discharge;			N/A						
Appendix B (g) (13) (F) (iv)	All measures proposed to avoid or minimize adverse impacts of cooling water intake. This shall include a Best Technology Available (BTA) discussion. If BTA is not being proposed, the rationale for not selecting BTA must be provided; and			N/A						
Appendix B (g) (13) (F) (v)	Educational programs to enhance employee awareness during construction and operation to protect biological resources.			Section 5.6.12						
Appendix B (g) (13) (G)	A discussion of compliance and monitoring programs to ensure the effectiveness of impact avoidance and mitigation measures incorporated into the project.			N/A						
Appendix B (g) (13) (H)	Submit copies of any preliminary correspondence between the project applicant and state and federal resource agencies regarding whether federal or state permits from other agencies such as the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, the California Department of Fish and Game, and the Regional Water Quality Control Board will be required for the proposed project.			Agencies have been contacted, but no concerns have been expressed as of Nov. 14, 2008.						

Adequacy Issue:	Adequate		Inadequate		<b>DATA ADEQUACY WORKSHEET</b>		Revision No.	0	Date	
Technical Area:	<b>Biological Resources</b>			Project:	SES Solar One		Technical Staff:			
Project Manager:				Docket:			Technical Senior:			
<b>SITING REGULATIONS</b>	<b>INFORMATION</b>			<b>AFC SECTION NUMBER</b>	<b>ADEQUATE YES OR NO</b>	<b>INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS</b>				
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and			Table 5.6-3 Table 5.6-4 Table 5.6-5						
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.			Table 5.6-3						
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.			Table 5.6-4						
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.			Table 5.6-5						



# OVERVIEW MAP



## LEGEND

- Project Boundary
- N.A.P. (Not a Part)
- Existing Transmission Line



SOURCES:  
 Stantec Engineering (project site Oct. 2008);  
 ESRI (overview);  
 USGS (7.5' quads various dates).

## GENERAL VICINITY MAP SOLAR ONE PROJECT

**URS**

4 0 4 8 Miles

SCALE: 1" = 8 Miles(1:506,880)  
 SCALE CORRECT WHEN PRINTED AT 8.5X11

CREATED BY: LG

DATE: 11-10-08

FIG. NO:

PM: WM

PROJ. NO: 27658176.10000

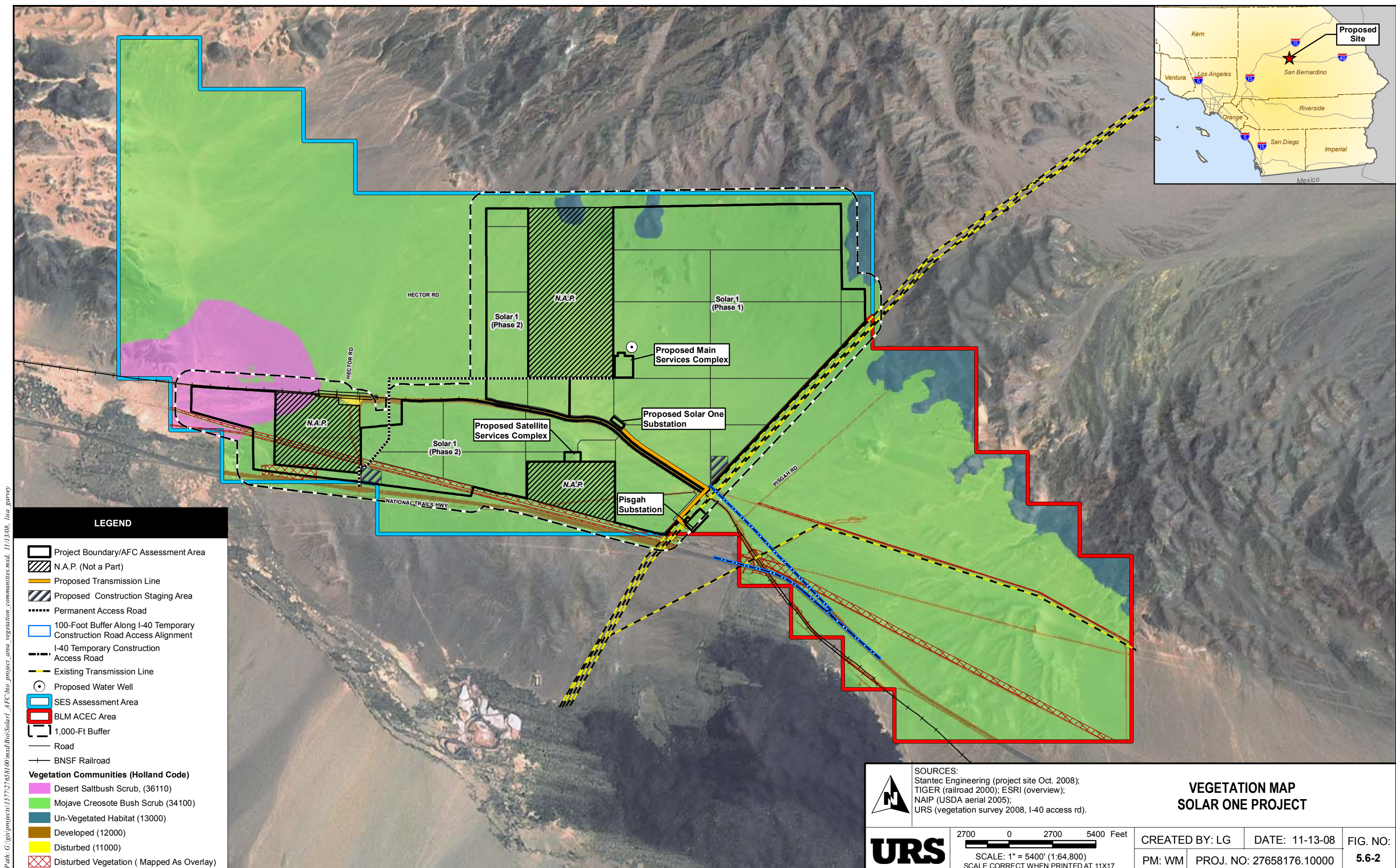
**5.6-1**







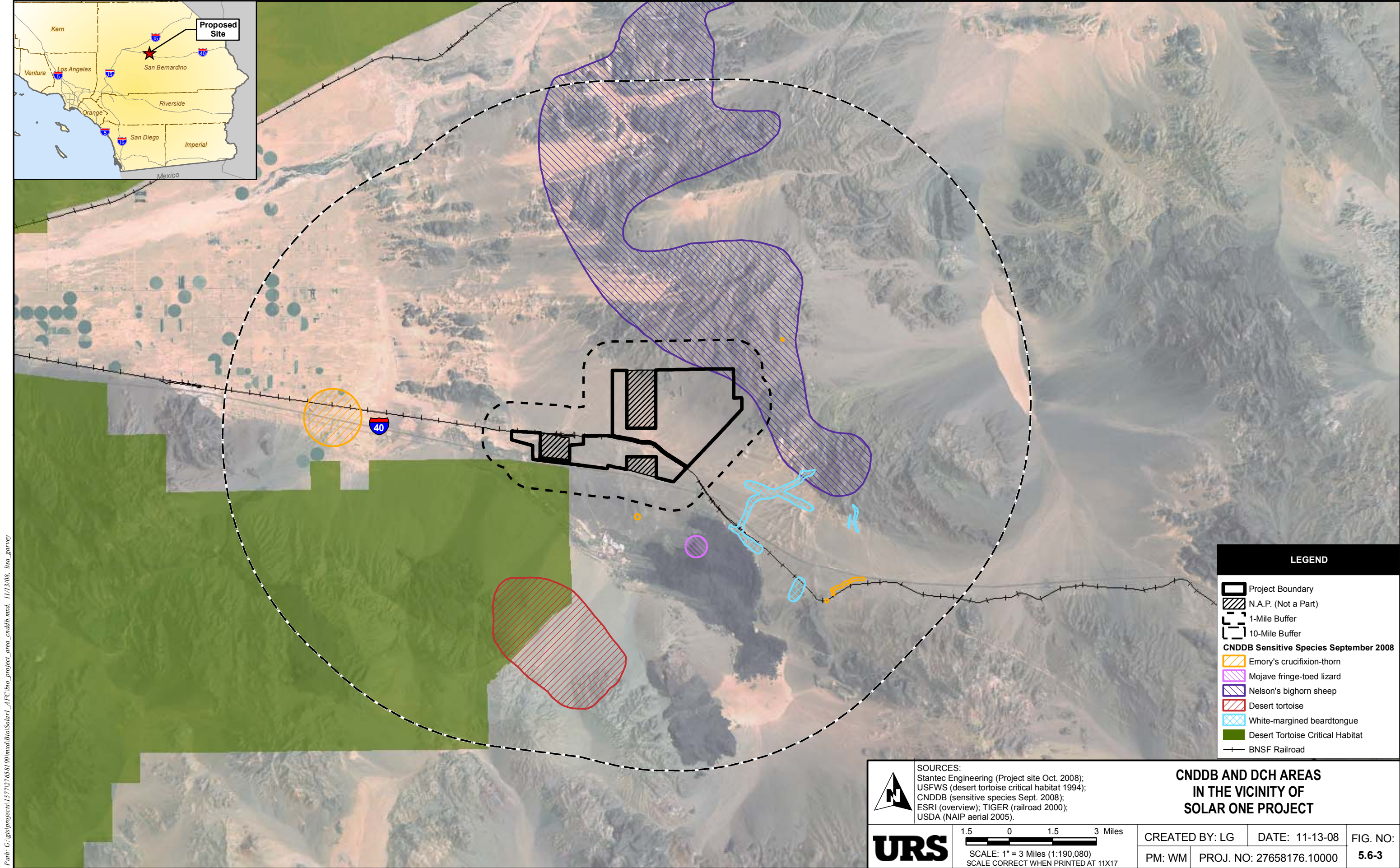
Path: G:\gsprojects\137276581\00\mxdbio\Solar1\_AFC\bio\_project\_area\_vegetation\_communities.mxd, 11/13/08, lisa garvey












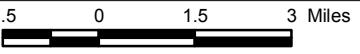
**LEGEND**

- Project Boundary
- N.A.P. (Not a Part)
- 1-Mile Buffer
- 10-Mile Buffer
- CNDDDB Sensitive Species September 2008**
- Emory's crucifixion-thorn
- Mojave fringe-toed lizard
- Nelson's bighorn sheep
- Desert tortoise
- White-margined beardtongue
- Desert Tortoise Critical Habitat
- BNSF Railroad



**SOURCES:**  
Stantec Engineering (Project site Oct. 2008);  
USFWS (desert tortoise critical habitat 1994);  
CNDDDB (sensitive species Sept. 2008);  
ESRI (overview); TIGER (railroad 2000);  
USDA (NAIP aerial 2005).

**CNDDDB AND DCH AREAS  
IN THE VICINITY OF  
SOLAR ONE PROJECT**



SCALE: 1" = 3 Miles (1:190,080)  
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: LG		DATE: 11-13-08		FIG. NO:
PM: WM	PROJ. NO: 27658176.10000			<b>5.6-3</b>

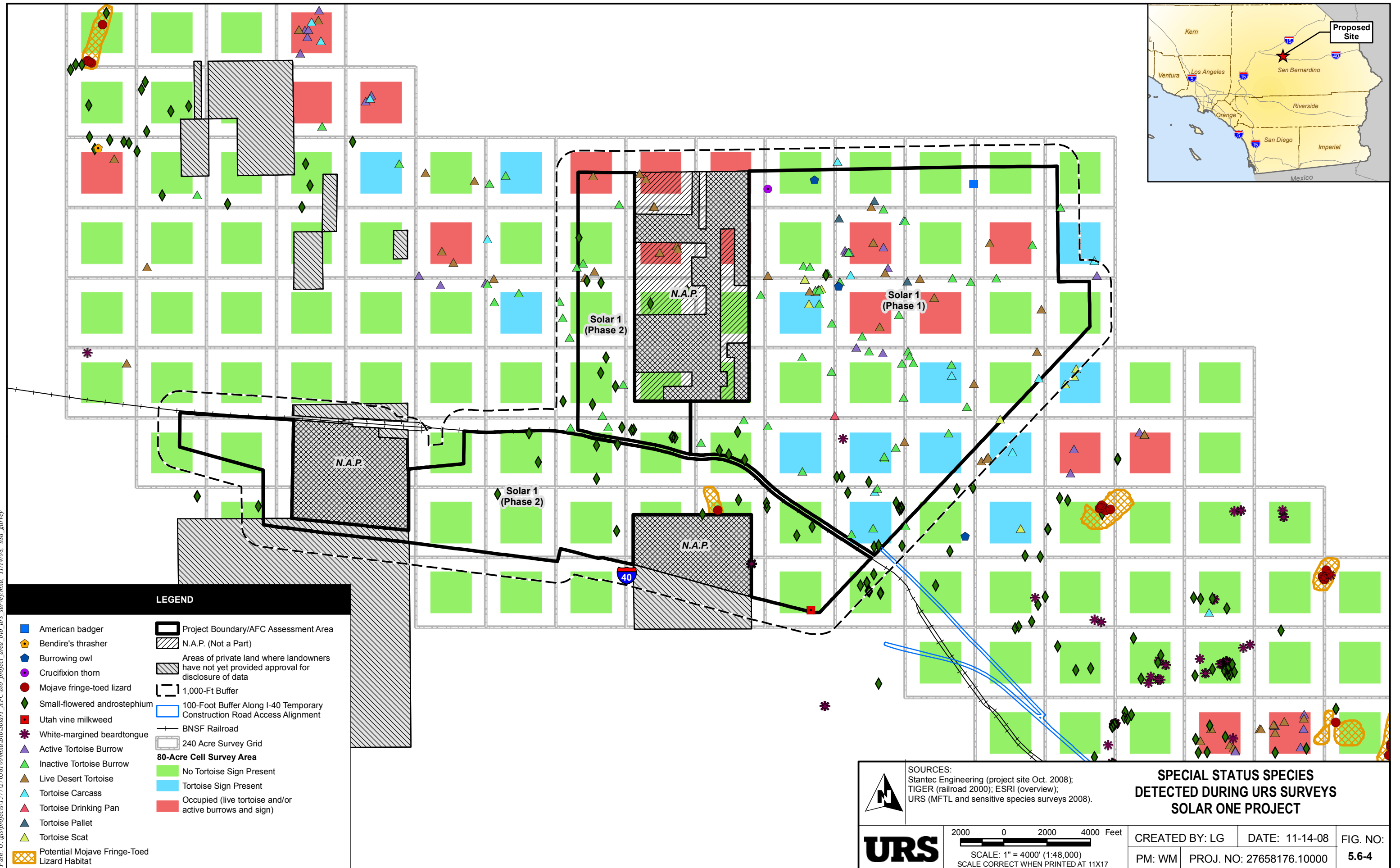
Path: G:\gis\projects\137127658100\mxdl\Bio\Solar1\_AFC\bio\_project\_area\_cnddb.mxd, 11/13/08, lisa\_garvey







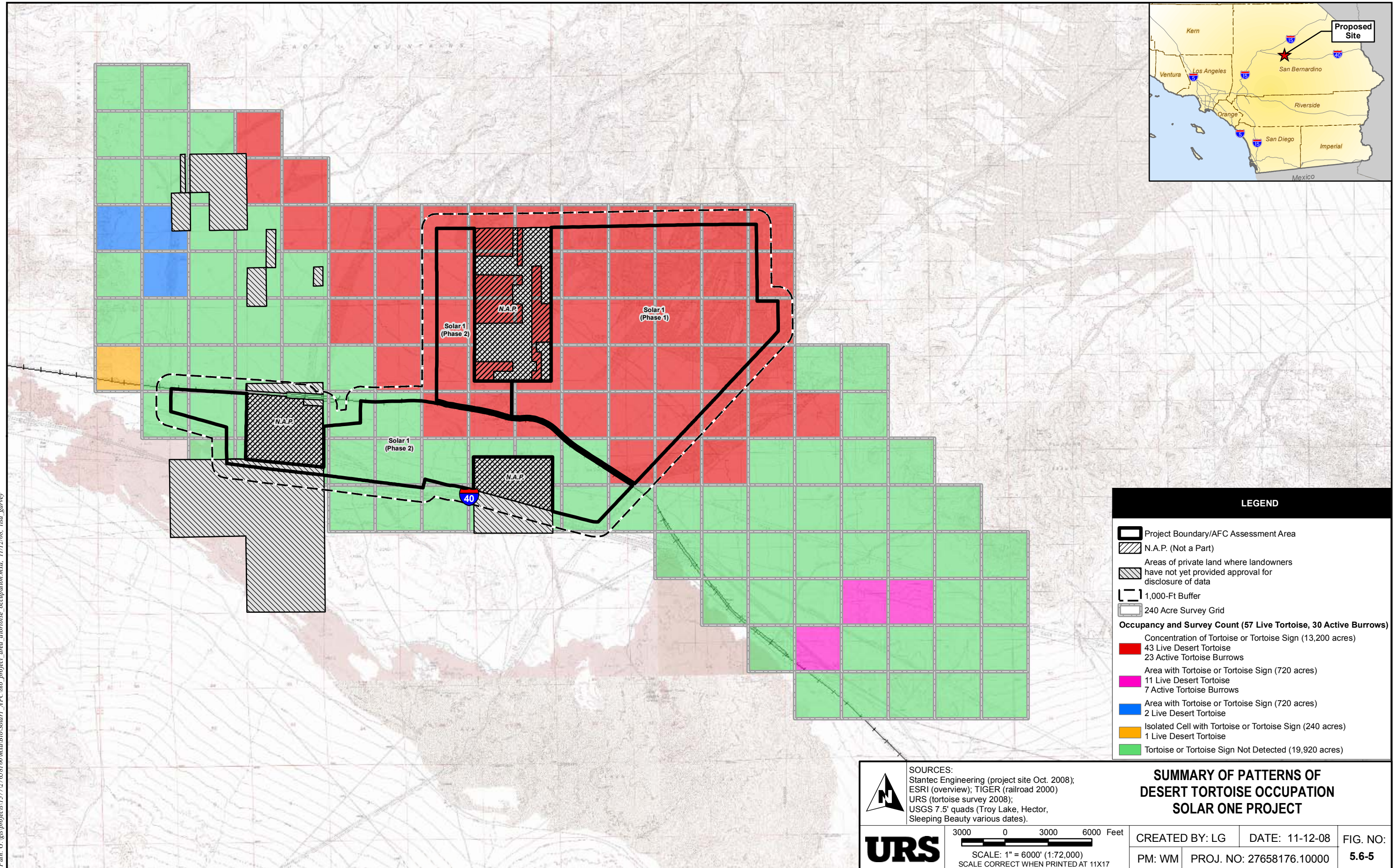
Path: G:\gs\projects\137176581\00\mxd\BioSolar1\_AFC\bio\_project\_area\_bio\_urs\_survey.mxd, 11/14/08, Lisa Garvey







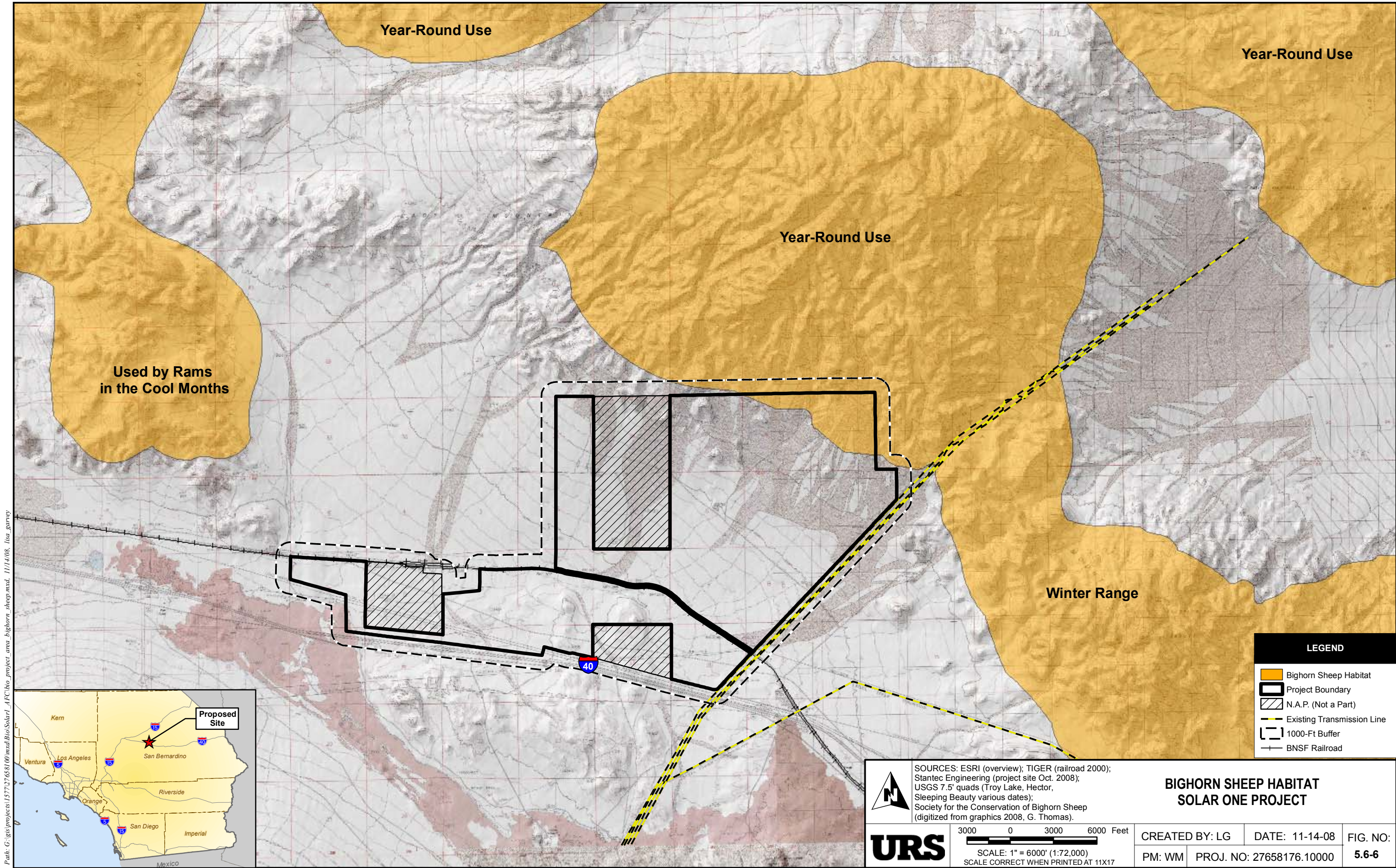
Path: G:\gsprojects\157127658\00\mxdl\Bio\Solar1\_AFC\bio\_project\_area\_dortoise\_occupation.mxd, 11/12/08, lisa\_garvey









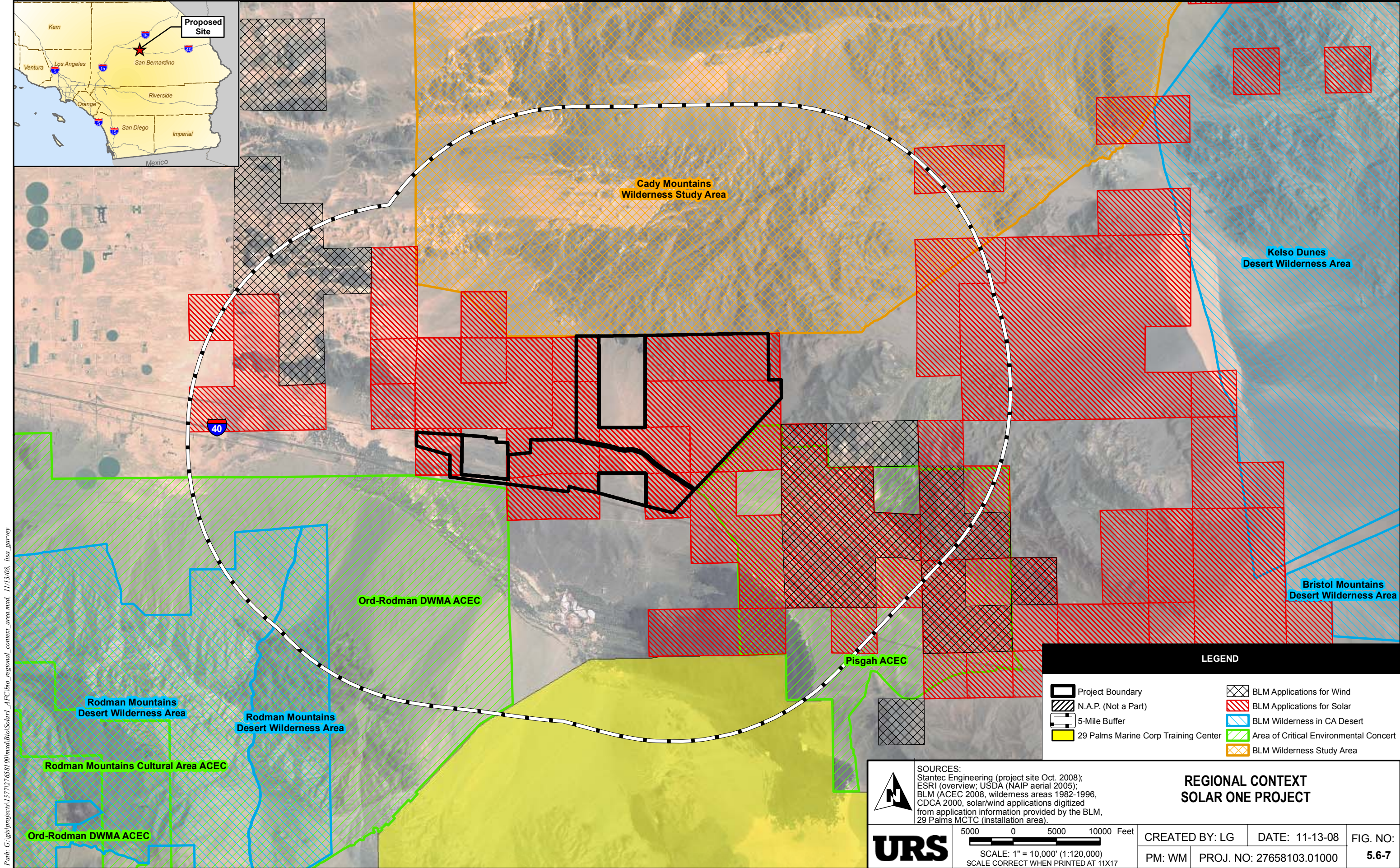


Path: G:\gis\projects\137727658100\mxd\BioSolar1\_AFC\bio project area bighorn sheep.mxd, 11/14/08, lisa\_garvey









Path: G:\gis\projects\157127658100\mxd\BioSolar1\_AFC\bio regional context area.mxd, 11/13/08, lisa garvey